STATE OF NEW YORK
DEPARTMENT OF CONSERVATION
WATER RESOURCES COMMISSION

The Ground-Water Resources of Ontario County, New York

By
FREDERICK K. MACK
and
RALPH E. DIGMAN

Geologists, U. S. Geological Survey

Prepared by the
U. S. GEOLOGICAL SURVEY
in cooperation with the
NEW YORK WATER RESOURCES COMMISSION

BULLETIN GW-48
ALBANY, N. Y.
1962

STATE OF NEW YORK
DEPARTMENT OF CONSERVATION
WATER RESOURCES COMMISSION

The Ground-Water Resources of Ontario County, New York

By
FREDERICK K. MACK
and
RALPH E. DIGMAN

Geologists, U. S. Geological Survey

Prepared by the
U. S. GEOLOGICAL SURVEY
in cooperation with the
NEW YORK WATER RESOURCES COMMISSION

BULLETIN GW-48

ALBANY, N. Y.

1962

STATE OF NEW YORK
DEPARTMENT OF CONSERVATION
WATER RESOURCES COMMISSION

UNITED STATES

DEPARTMENT OF THE INTERIOR

Stewart L. Udall, Secretary

GEOLOGICAL SURVEY

CONTENTS

ILLUSTRATIONS

TABLES

GROUND-WATER RESOURCES OF ONTARIO COUNTY, NEW YORK

By

Frederick K. Mack and Ralph E. Digman

ABSTRACT

Ontario County has an area of 649 square miles and its population in 1950 was 60,172. The northern part of the county is located in the Ontario Lake Plain and the southern part is located in the Finger Lakes region.

Ground-water supplies are obtained from both the bedrock and the unconsolidated deposits of the county. The productive bedrock consists of sedimentary rocks of Paleozoic age, which range in thickness from about 4,000 feet in the northern part of the county to about 9,000 feet in the southern part. Those rocks which actually crop out in the county consist of about 3,000 feet of shale, sandstone, limestone, and dolomite of Silurian and Devonian age. The outstanding structural features of the bedrock are a regional dip toward the south, gentle localized folding, and jointing.

On the basis of their water-bearing characteristics the bedrock formations have been grouped into four units. The northernmost and, therefore, the oldest of the units is the Camillus shale of the Salina group, termed the lower shale aquifer, which has a thickness of about 500 feet. The average yield of individual wells in this unit is 20 gpm (gallons per minute). The water is of two types, one high in sulfate with an average dissolved solids content of about 1,800 ppm (parts per million), and the other high in bicarbonate with an average dissolved solids content of 500 ppm. The next oldest unit, which crops out just south of the Camillus, is termed the limestone aquifer and is composed of the Bertie limestone, the Cobleskill dolomite, and the Onondaga limestone, and has a thickness of about 170 feet. Yields of individual wells tapping this unit average 22 gpm. The water is principally of the bicarbonate type and has a dissolved solids content averaging about 650 ppm. The third water-bearing unit includes the limestone and shale sequence (Marcellus shale of the Hamilton group to the Hatch shale member of the West Falls formation). It crops out in a broad east-west belt in the central part of the county and has a thickness of about 1,500 feet. The average yield of wells tapping this unit is 6 gpm. Water from the unit is of the bicarbonate type and has an average dissolved solids content of about 500 ppm. The youngest and southernmost sandstone aquifer includes the shale, siltstone, and sandstone sequence from the Grimes siltstone member of the West Falls formation to the Dunkirk shale member of the Perrysburg formation and has a thickness of about 1,000 feet. Yields from this unit average 6 gpm and range from 1 to 15 gpm. The one analysis available of water from this unit shows the water to be the bicarbonate type with a dissolved solids content of 232 ppm.

The bedrock is overlain in nearly all parts of the county by a layer of unconsolidated deposits, which range in thickness from less than a foot to more than 300 feet. The unconsolidated deposits are nearly all of Pleistocene age. They consist of unstratified materials (till) laid down by glacial ice, and of both fine- and coarse-grained stratified sediments

deposited either by glacial melt waters or by streams flowing into glacial lakes from upland areas. Till, which occurs in practically all parts of the county, and the fine-grained stratified deposits, which occur mainly in the northern part, are capable of yielding a few hundred gallons of water per day to large-diameter wells dug several feet below the minimum level of the water table. The coarse-grained stratified deposits underlie many of the low-lying areas, mainly in the northern part of the county. Although these deposits are presently relatively undeveloped, they are potentially the most productive deposits of the county. In the area underlain by the Camillus, the unconsolidated deposits yield water of both the sulfate type and the bicarbonate type. In the remainder of the county, the deposits yield water of the bicarbonate type.

Ground water is the principal source of supply for farms, rural homes, small industries, and several villages. The total use of ground water in 1957 is estimated to have ranged from 3,000,000 gpd (gallons per day) in the winter to 5,000,000 gpd in the summer. In some areas only small supplies can be obtained, and in other areas the ground water is not of usable quality; but the overall supply of water is not only adequate for present demands but also is capable of supporting substantially larger demands in the future.

INTRODUCTION

Purpose and Scope

A program of ground-water investigations was begun in upstate New York in 1945 by the U. S. Geological Survey in cooperation with the New York Water Resources Commission (formerly Water Power and Control Commission). The purpose of the program is to appraise the ground-water resources of the State on an area by area basis. The fundamental objectives of the program are to determine (1) the source, occurrence, quantity, and quality of the ground water, (2) the character of the water-bearing materials, and (3) the factors affecting the development of additional ground-water supplies. The study of the ground-water resources of Ontario County was begun in 1947 as a part of this statewide program. The index map (fig. 1) shows Ontario County and other areas in which similar investigations have been and are being made. Reports already published are listed on the back cover of this report.

The importance of ground water in Ontario County is demonstrated by the fact that most farms, rural homes, some industries, and, with the exception of the municipalities of Canandaigua, Geneva, and Rushville, all public water supply systems obtain water from wells or springs. The building of new homes and the development of additional industries will doubtless result in a continuing increase in the use of ground water.

Methods of Investigation

The work on which this report is based consisted of the following phases:

1. Collection of information on the location, depth, diameter, yield, and other pertinent features of approximately 1,300 wells and test holes. Similar data were collected for 49 springs.

2. Field examination of the bedrock and surficial deposits of the county in order to become familiar with the formations underlying the area and to supplement existing geologic maps.

3. Collection and analysis of water samples from wells and springs for the determination of chemical characteristics.

4. Continuous measurement of the water level in an observation well to determine the magnitude of seasonal and other fluctuations.

5. Seismic studies to determine the thickness of unconsolidated deposits in the northwestern part of the county where well data were not adequate.

6. Compilation of data on the use of ground water.

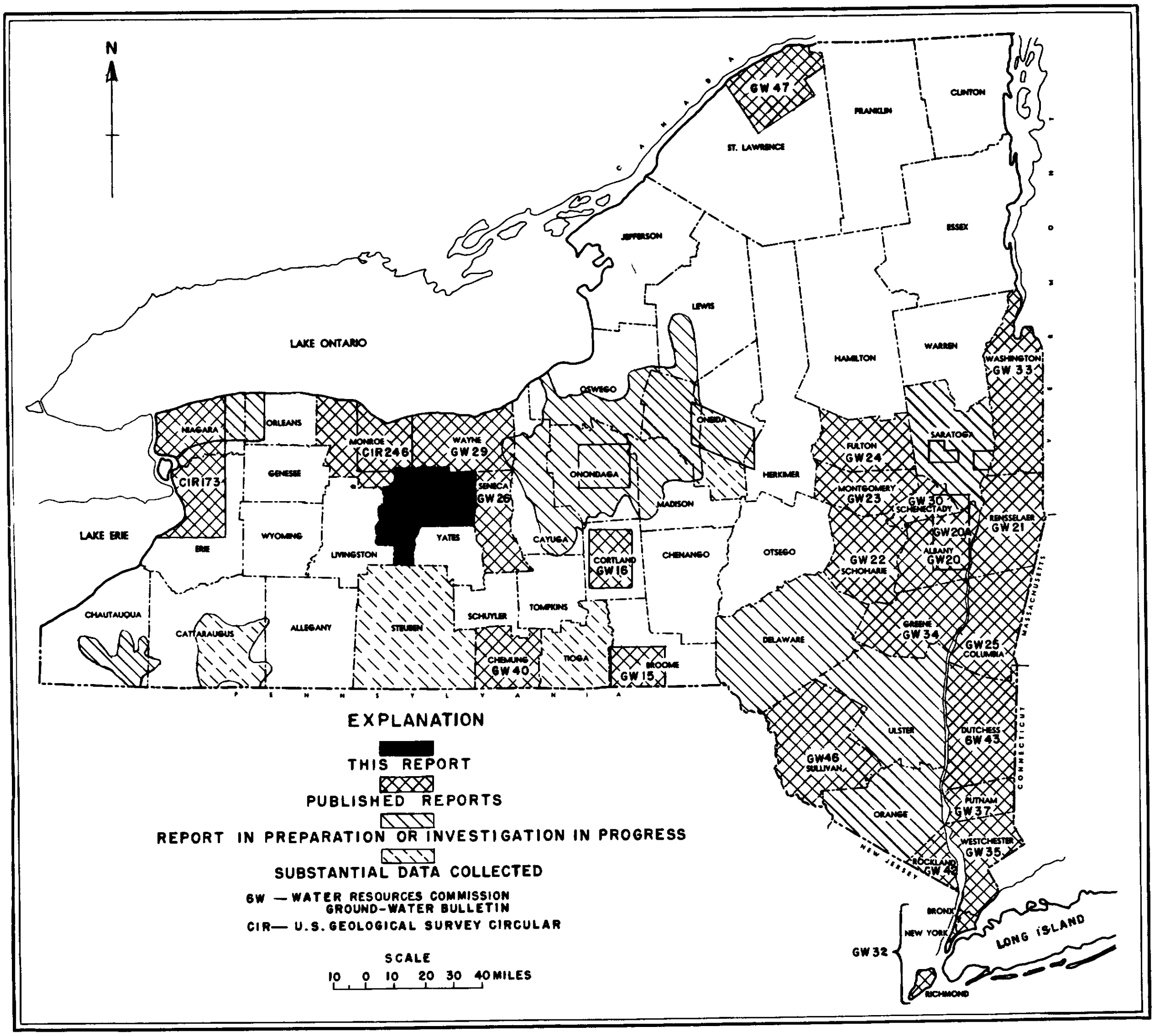

Figure 1.--Map of New York, exclusive of Long Island, showing location of Ontario County and status of ground-water investigations.

Authorship

Most of the well records used in the preparation of this report were collected by Harry D. Wilson during the fall of 1947, the summer of 1948, and the spring of 1954. Using the well records collected in 1947 and 1948 and geologic data collected in the field during the summer of 1949, Ralph E. Digman had nearly completed a manuscript at the time of his death in December 1953. Much of the information contained in Digman's manuscript was integrated with data that were collected later by Frederick K. Mack and used in the preparation of this report.

The fieldwork on which the report is based, was done under the supervision of E. S. Asselstine, formerly geologist in charge of the Albany office. The preparation of the report was under the direct supervision of R. C. Heath, and under the general supervision of G. C. Taylor, Jr.

Water samples collected as a part of the investigation were analyzed in the laboratories of the New York State Department of Health, Albany, N. Y., and the Quality of Water Branch, U. S. Geological Survey.

Well-Location System

The locations of wells and springs for which records are contained in this report are shown in plate 1. The wells and springs are arbitrarily numbered in the order in which the records were collected, beginning with Ot 1. As an aid in locating wells on maps of New York State, latitude lines have been numbered at 15-minute intervals from north to south, beginning with "1" for parallel 45°00' and ending with "17" for parallel 41°00". Similarly, longitude lines at 15-minute intervals have been lettered consecutively from west to east, beginning with "A" for meridian 79°45', and ending with "Z" for meridian 73°30'. The coordinate letters and numbers used to locate wells in Ontario County are shown on the well location map (pl. 1). Intersections of the coordinates form points from which wells and springs can be located by distance and direction. For example, well Ot 1 (9L, 8.5S, 0.4E) can be found by locating the point where lines "9" and "L" cross and measuring 8.5 miles south and 0.4 mile east. The coordinates, distances, and directions for each well and spring location are shown in the tables of well and spring records, tables 10 and 11. The "Ot" has been omitted in each well and spring number in plate 1 because all are in Ontario County.

Previous Investigations

This is the first report concerned with the ground-water resources of Ontario County. However, investigations of the ground-water resources of Monroe County (Leggette, Gould, and Dollen, 1935), Wayne County (Griswold, 1951), and Seneca County (Mozola, 1951), which are adjacent to Ontario County, included some data on the water-bearing properties of the geologic formations in the county.

Maps showing the bedrock geology of either the entire county or parts of it have been prepared by several geologists working in the area. Among

these are maps of the entire county by Clarke (1885), the town of Naples by Luther (1898), the Canandaigua and Naples quadrangles by Clarke and Luther (1904), the Geneva and Ovid quadrangles by Luther (1909), the Honeoye and Wayland quadrangles by Luther (1911), the Clyde quadrangle by Gillette (1940), and the southern half of the Phelps quadrangle by D. R. Pefley 1/.

Detailed investigations of the stratigraphy of the bedrock formations underlying the county are described in reports on the Hamilton group by Cooper (1930), Tully limestone by Trainer (1932), Tully limestone by Cooper and Williams (1935), Genesee group by Grossman (1944), Wiscoy sandstone by Pepper and de Witt (1950), Onondaga limestone by Oliver (1954), West Falls formation by Pepper, de Witt, and Colton (1956), Naples group by R. G. Sutton 2/, the Sonyea formation by Colton and de Witt (1958), and the Genesee, Sonyea, and part of the West Falls formation by de Witt and Colton (1959).

Papers describing the structure of the rocks in the county have been prepared by Williams (1883), Fox (1932), Wedel (1932), Bradley and Pepper (1938), Richardson (1941), and Kreidler (1957).

Preglacial drainage and Pleistocene history of the area have been described by Grabau (1908) and Fairchild (1904, 1909, 1910, 1926, and 1935). Soils of the county have been described and mapped in a general way in a report by Carr and others (1912) and in detail in a report by Pearson and Cline (1958).

Acknowledgments

The New York State Department of Public Works, Bureau of Soil Mechanics, made seismic surveys of the depth to bedrock at 36 sites in the county and aided materially in the establishment of the observation well at Manchester (Ot 900). It also furnished the results of test-drilling programs which were carried out by the State during the construction of the New York State Thruway to obtain water for restaurants and to determine foundation conditions for bridges.

The New York State Department of Health furnished approximately 100 water analyses, most of which were made specifically for the investigation.

J. G. Broughton, State geologist, and other geologists of the Geological Survey, New York State Museum and Science Service, provided valuable assistance and advice regarding the geology of the area.

Wilbur Secor, U. S. Department of Agriculture, Soil Conservation Service (Sodus Office), and the personnel of the Canandaigua office of the Soil Conservation Service furnished information pertaining to the soils of Ontario County.

1/ 1956, Geology of the Stanley and Rushville quadrangles: Unpublished master's thesis at the University of Rochester.

2/ 1956, Stratigraphy of the Naples group, (Late Devonian), in Western New York: Unpublished doctor's thesis at Johns Hopkins University.

Among the many well-drilling contractors who aided in the investigation by furnishing data on water wells are Walter Putnam, Paul Gardner, Lawrence Keith, Donald Rigby, Theodore Hall, Nelson Comstock, and Thomas Dempsey.

Thanks are due to the many county and village officials who furnished information regarding public water supplies. Appreciation is also expressed to the land owners and other individuals who furnished data regarding their water supplies.

Reports of previous investigations were used extensively in the preparation of this report.

GEOGRAPHY

Location and Extent

Ontario County is located in the Ontario Lake Plain and Finger Lakes region of New York about half way between the geographic center and the western boundary of the State (fig. 1). It is bordered on the north by Monroe and Wayne Counties, on the east by Seneca County, on the south by Yates and Steuben Counties, and on the west by Livingston and Monroe Counties. The county covers an area of 649 square miles (415,360 acres). It is irregular in outline but roughly resembles a short-handled meat cleaver with the handle extended southward and the cutting edge to the east. The county extends 32 miles in its greatest east-west dimension and approximately the same distance in its greatest north-south dimension. It is divided into 16 towns. The county seat is Canandaigua.

Culture

According to the New York State Department of Commerce (1957), the estimated population of Ontario County as of July 1, 1957, was 66,143, an increase of 10 percent over the 60,172 enumerated in the 1950 U. S. Census. The county is predominantly a rural area as shown by the following breakdown of the county's population in 1950: urban, 25,476; rural nonfarm, 22,623; and rural farm, 12,073. All but two of the urban communities in the county, Geneva (estimated population in 1957, 18,494) and Canandaigua (population in 1957, 9,042 1/), have fewer than 2,000 residents each.

Most of the industries in Ontario County are centered in Geneva and Canandaigua. The principal industries produce fabricated metal products, nonelectrical machinery, and food products.

In 1954 three-quarters of the county's land area was divided into 2,370 farms and was devoted to agriculture. Sales of products from these farms during 1954 totaled $15,900,000, of which $8,600,000 was derived from sales of livestock and livestock products and $7,300,000 was derived from sale of crops.

The New York State Thruway and U. S. Highway 20 (New York Route 5), two of New York State's principal east-west lines of transportation, cross the northern part of the county. The New York State Barge Canal serves Ontario County at Port Gibson at the northern boundary of the county. Railroads serve the more populous areas.

1/ From special census in 1957.

Topography

The surface of Ontario County, as may be seen in plate 1, is relatively irregular; however, it may be divided into two relatively distinct areas on the basis of local relief. The smaller of these areas, the southwestern part of the county, is characterized by high, smoothly rounded hills elongated in a north-south direction and by steep-sided U-shaped valleys. Most of the hills are capped by sandstone or siltstone of Late Devonian age. Some of the steepest hillsides rise 1,000 feet in elevation in a horizontal distance of 2,000 feet. The maximum relief in this part of Ontario County is about 1,570 feet, the lowest altitude being 688 feet at the surface of Canandaigua Lake and the highest altitude being 2,240 feet at the top of Gannett Hill. Individual hills rise as much as 1,300 feet above the floors of adjacent valleys. Canandaigua Lake, Canadice Lake, and Honeoye Lake, three of the well-known "Finger Lakes" of New York, are in this area.

The remainder of the county, encompassing the central and northern parts, is relatively flat and the surface slopes gently toward the north. This area is marked by numerous low and rounded or irregularly-shaped hills. Most of these hills are composed of unconsolidated deposits of Pleistocene age. The low rounded hills, most of which are oriented in a north-south direction, are termed drumlins. Drumlins are particularly abundant in the area immediately west of the northern end of Canandaigua Lake and in a belt along the northern boundary of the county. The irregularly-shaped hills which are characteristic of the northwestern and northeastern corners of the county were formed as kames or deltas during the melting of the ice sheets that invaded the area in Pleistocene time. One of the outstanding topographic features of the northern part of the county is the irregular lowland that extends from Victor eastward to the county line north of Geneva.

Drainage

With the exception of a small area of less than 2 square miles in the southwestern part of the Town of Naples, all of Ontario County is drained by streams of the Finger Lakes-Great Lakes-St. Lawrence River drainage system.

Approximately 75 percent of the county is in the Oswego River basin, approximately 22 percent is in the Genesee River basin, and approximately 3 percent is in the Irondoquoit Creek basin. The remainder of the county, less than 0.3 percent, drains southward to Chesapeake Bay through the Cohocton-Chemung-Susquehanna system. Principal streams of the county are Honeoye Creek, Mud Creek, Ganargua Creek, Canandaigua Outlet, and Flint Creek. Much of the flow of Canandaigua Outlet is derived from Canandaigua Lake and much of the flow of Honeoye Creek is derived from Hemlock, Honeoye, and Canadice Lakes.

The Surface Water Branch of the U. S. Geological Survey, in cooperation with the New York State Department of Public Works and other State and Federal agencies, measures the flow of streams and the fluctuations of the level of several lakes throughout the State. These measurements are published annually in water-supply papers of the U. S. Geological Survey.

Climate

Graphs of data collected by the U. S. Weather Bureau from 4 stations in or near Ontario County are plotted in figure 2. In general, the differences in climate from one part of the county to another are minor. The precipitation is generally higher in the summer than in the winter. The average annual temperature is about 48° F, and the growing season averages about 160 days.

The greatest difference in climate is reflected in the average annual precipitation which ranges from a high of about 35 inches at Bristol Springs to a low of about 30 inches at Shortsville. The higher precipitation at Bristol Springs is probably due, at least in part, to the higher altitude of the station.

GEOLOGY

Two major types of rock occur at or near the surface in Ontario County--(1) consolidated sedimentary rock (generally referred to in this report as bedrock) of Paleozoic age and (2) unconsolidated surficial deposits of glacial or alluvial origin and of Pleistocene or Recent age. The consolidated Paleozoic rocks underlie the entire area and are overlain in most places by the unconsolidated deposits. The consolidated rocks are underlain by igneous and/or metamorphic rocks (basement rocks) of Precambrian age.

The total thickness of the rocks of Paleozoic age underlying Ontario County ranges from about 4,000 feet in the northern part of the county to about 9,000 feet in the southern part. The total thickness of these rocks which crop out within the county is approximately 3,000 feet. The Paleozoic rocks consist of layers of sandstone, shale, limestone, and dolomite. Except for jointing and a gentle tilting of the formations toward the south, these beds have been disturbed relatively little since they were deposited. Because of the dip to the south, younger rocks are exposed progressively southward. The areal distribution of the principal bedrock units is shown in plate 2.

The unconsolidated deposits were laid down either directly or indirectly from the continental ice sheets that invaded the area in Pleistocene time. These deposits are variable in thickness. They are absent at bedrock outcrops but are as much as 300 feet in the area north of Fishers. Their average thickness in the county is probably on the order of 50 feet. The unconsolidated deposits may be subdivided into three distinctive types on the basis of the grain size, range in the grain size of the component particles, and the presence or absence of stratification. These are (1) till, an unstratified mixture of rock particles ranging in size from clay to boulders; (2) coarse-grained deposits (deltas, kames, and glacial outwash deposits), stratified materials consisting of layers of graded particles ranging in size from fine sand to cobbles; and (3) fine-grained deposits (lake-bottom sediments), stratified materials consisting of particles ranging in size from clay through fine sand.

Plate 3 is a map showing the areal extent of the different types of unconsolidated deposits.

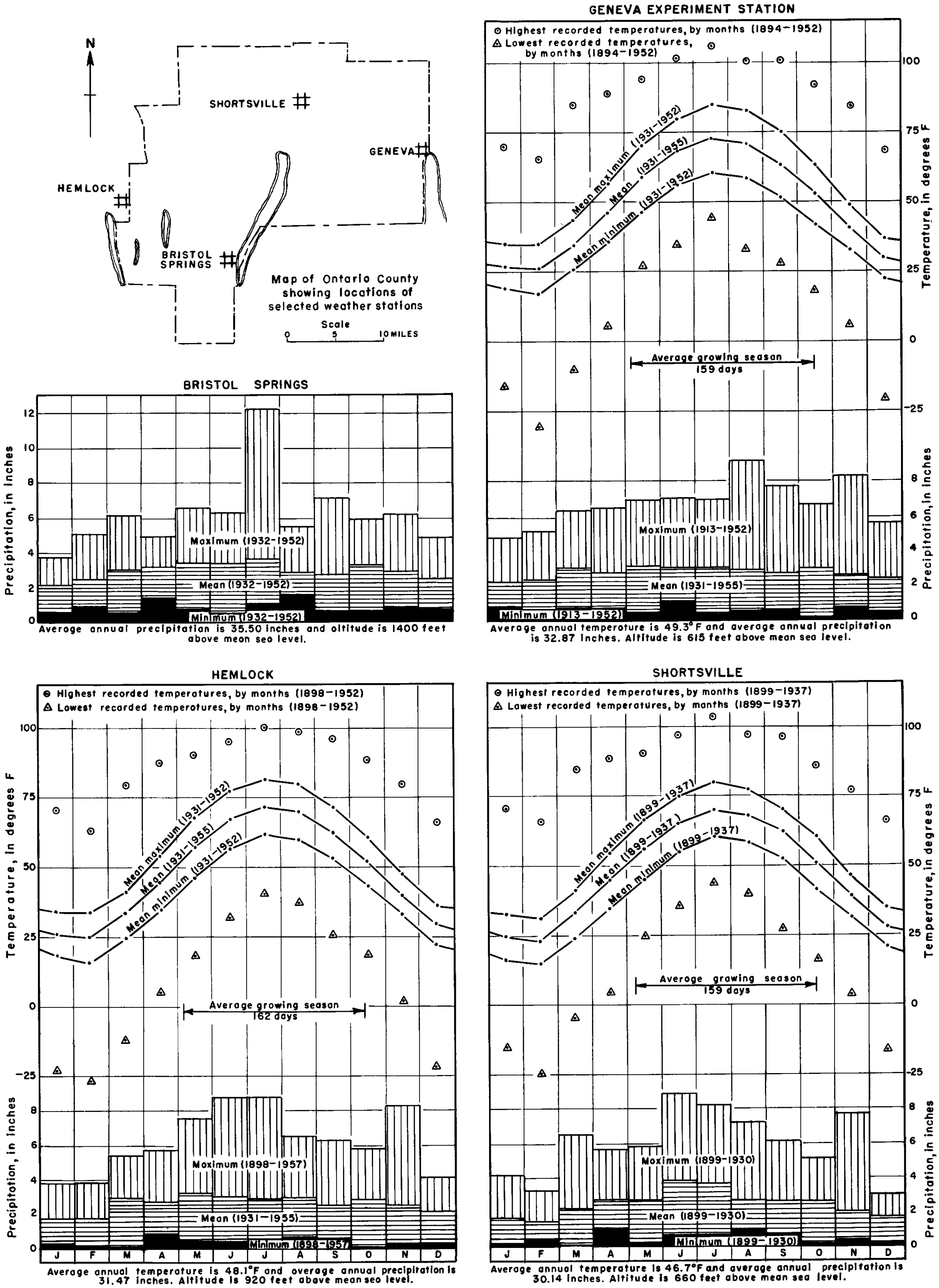

Figure 2.--Graphs showing monthly precipitation at Bristol Springs and temperature and precipitation at Geneva Experiment Station, Hemlock, and Shortsville.

Geologic History

During and since Precambrian time, the Ontario County area has passed through many successive stages of erosion and deposition. Generally deposition occurred when the area was submerged, and erosion, when the land surface emerged. Very little direct evidence remains of the periods of erosion, but many of the sediments which accumulated during the periods of deposition are present in the area and indicate the character of the environment which existed during those times.

Rocks of Precambrian age (basement rocks) underlying Ontario County are the oldest rocks in the county and so deeply buried beneath younger rocks that little is known about their character or about the conditions at the time of their formation. Miller (1924, p. 33) has indicated that during a part of Precambrian time, most, if not all of New York State was covered by "a great expanse of ocean water." Doubtless, the existence of this ocean was only one of many major events which affected the area in Precambrian time.

Uncertainty exists as to whether or not any deposition of sediments occurred in Ontario County during Cambrian time, the beginning period of the Paleozoic era. Evidence from other parts of the State indicates that erosion rather than deposition was the dominant activity during most of that period.

The county was submerged and received sediments during a part of the Ordovician period. According to Miller (1924, p. 46), all of New York State, except the Adirondack area, was submerged under the Ordovician sea. Several deep wells in the county, drilled for gas and salt (Kreidler, 1957, p. 31-35), have reached the Queenston shale of Ordovician age. In general, the Ordovician sea was shallow and is believed to have covered most of the central and eastern parts of the country. The area emerged from the sea and erosion commenced at the end of Ordovician time.

Deposition commenced again early in the Silurian period and continued, with the exception of one relatively short break, until after the sediments comprising the Salina group had accumulated. (The formations mentioned in this account of the geologic history are listed in table 1.) The sequence of events which occurred from the beginning of deposition of the Camillus shale of the Salina group (the oldest rock unit cropping out in the county) until the end of the Silurian period included:

1. Deposition, in a shallow highly saline sea, of the layers of halite (common salt), gypsum, anhydrite, clay, and limy mud which now comprise the Camillus shale. At the end of Camillus time, a substantial reduction in the concentration of the mineral constituents in the sea water terminated the deposition of the salt, gypsum, and anhydrite.

2. Deposition of the layers of silt and limy mud, which now comprise the Bertie limestone of the Salina group.

3. Temporary emergence of the area from the sea, erosion of the land surface during a relatively brief interval, and then resubmergence of the area.

4. Deposition of the layers of silt, clay, and limy mud which comprise the Cobleskill dolomite.

Erosion was the dominant activity in the area during Early Devonian time. However, deposition commenced again by Middle Devonian time and continued with only minor breaks until all of the Devonian sediments now found in the county had been deposited. The lithology of these sediments indicates that the sequence of events during that time included:

1. A long period of stable conditions during which great thicknesses of a relatively pure calcareous ooze (now the Onondaga limestone) were deposited in the area.

2. Deposition of a thick layer of limy mud (now the shales of the Hamilton group) over the ooze.

3. Erosion for a relatively brief period and then resubmergence beneath the sea.

4. Deposition of a relatively thin and pure layer of calcareous ooze (now the Tully limestone) at least in the eastern part of the county.

5. Erosion for a relatively brief period and then resubmergence beneath the sea.

6. Deposition of layers of clay and some limy muds (now the shales and limestones of the Genesee formation) over the Hamilton sediments of the western part of the county and over the Tully sediments in the eastern part of the county.

7. Deposition of layers of clay and silt (now the rocks of the Sonyea formation) over the Genesee sediments.

8. Deposition of the sediments that were to make up the rocks of the West Falls formation and Wiscoy sandstone. These, like those of other Upper Devonian rocks, were laid down in a cycle of deposition which included black mud as the first sediment, brown and dark-gray muds next, and finally silty mud, silt, and fine sand. The lower of the two cycles include the Rhinestreet shale member, the Hatch shale member, and the Grimes siltstone member; the upper two cycles include the Gardeau shale member, the West Hill member, and the Nunda sandstone member. The Wiscoy sandstone represents the last phase of the cycle.

9. Deposition of the muds and silts of the Dunkirk shale member of the Perrysburg formation represents the start of a new cycle.

Intermittent erosion and deposition probably continued in the general area during the remaining periods of the Paleozoic era, although no known consolidated rocks younger than the Devonian have been preserved in the county. Large-scale crustal movements in eastern North America, termed the Appalachian Revolution, marked the closing of the Paleozoic era. The tilting and gentle folding of the Paleozoic rocks in Ontario County probably occurred at this time.

Throughout the Mesozoic era, the forces of weathering and degradation gradually reduced the region to a nearly flat plain or peneplain. During the Cenozoic era the region was uplifted once again and streams began eroding with renewed vigor. The uplifted peneplain was gradually dissected and major streams developed a pattern of north-south-trending valleys. Later continental glaciation modified the pre-Pleistocene drainage, in some cases to a considerable degree.

During Pleistocene time, continental ice sheets centered in eastern Canada advanced across nearly all of New York. In the vicinity of Ontario County, the ice was thick enough to cover the highest hills. As it advanced, the ice sheet smoothed and rounded hills, deepened valleys, and deposited a layer of unsorted debris (till) which rests upon the consolidated rock formations in most parts of the county. As the ice melted away, deposits of stratified sand and gravel were formed in the valleys by melt-water streams flowing from the ice and layers of clay and silt were deposited in the bottoms of the glacial lakes that formed in some valley areas. At the close of the Pleistocene epoch, the topography of Ontario County appeared much as it does today.

During Recent time, some erosion has occurred in the highland areas; small bodies of clay, silt, and sand have been deposited on the flood plains of the larger streams; and clay and silt have been deposited in the bottoms of lakes.

Rock Units

Each bedrock formation cropping out in Ontario County has been studied, named, and described in detail by geologists working in the region. Table 1 is a list of these rock units arranged according to age. The table also contains a description of the lithology of each unit and a column which shows the grouping of the formations into four water-bearing units. Further discussion of the stratigraphy and lithology of these water-bearing units is given in the section entitled "Ground Water."

Structure

The rocks cropping out in Ontario County have been affected very little by crustal movements. The outstanding structural features of the bedrock formations are (1) a regional dip toward the south, (2) gentle folds, and (3) joints. These features were probably developed during the Appalachian Revolution which affected all of eastern North America near the close of the Paleozoic era.

The geologic map (pl. 2) shows that the rock units of the county crop out along east-west bands. The rocks have an east-west strike and dip southward from 40 to 60 feet per mile. Because the rocks dip to the south and the land surface rises in that direction, progressively younger rocks are exposed at the surface from north to south. For the same reasons, it is generally true that the depth to any given formation increases as the distance south of the area of outcrop increases.

The gentle localized folding, which has been mapped by Bradley and Pepper (1938), is reflected by the variations in the dip of the beds in

Table 1.--Age and description of bedrock formations

System	Series	Group	Formation	Member	Thickness (feet)	Character of material	Water-bearing unit and approximate thickness (see table 2)
Devonian	Upper		Perrysburg formation	Dunkirk shale	100	Siltstone and shale	Sandstone aquifer 1,000 feet
			Wiscoy sandstone		200	Sandstone, greenish-gray, soft. Includes many beds of darker shale.	
			West Falls formation	Nunda sandstone	200	Siltstone containing fine sand in places, light greenish-gray to light bluish-gray. Shaly in lower part. Beds thin to massive. Massive beds weather into large, curved slabs.	
				West Hill	180	Siltstone and silty shale; gray; contains layers of nodules in places. Silty shale is very dark gray and petroliferous in some areas.	
				Gardeau shale	350	Shale, medium-gray, silty in places. Includes beds of siltstone, black shaly concretions, and some gray mud rock.	
				Grimes siltstone	50	Siltstone, light-gray, in lenticular beds 1 inch to 6 feet thick. Beds are massive, crossbedded, or even-bedded. Small amounts of shale are interbedded with the siltstone in the middle third.	
				Hatch shale	340	Shale, dark-gray, silty. Includes some beds of black shale and many layers of even-bedded to crossbedded siltstone. Clayey limestone and calcareous siltstone concretions are present, mainly in the lower part.	Upper shale aquifer 1,500 feet
				Rhinestreet shale	20	Shale, brownish-black, fissile, petroliferous, and generally unfossiliferous.	
			Sonyea formation	Cashaqua shale	90	Shale, calcareous, greenish-gray, studded with nodules of limestone.	
				Rock Stream siltstone	80	Siltstone, quartz, medium-gray, very silty gray shale, and very silty gray mud rock.	
				Pulteney shale	50	Shale, dark-gray, with many intercalated thin layers of black shale and some thin beds of siltstone.	
				Middlesex shale	60	Shale, black, bituminous, massive in fresh exposures, fissile upon weathering. Fossils scarce.	
			Genesee formation	West River shale	130	Shale, interbedded dark-gray and black beds. Thin siltstone beds occur at several intervals within this formation in the eastern part of the county. The dark-gray shales are irregularly bedded and calcareous. The black shales are fissile and resemble the Marcellus black shales.	
				Genundewa limestone	15	Limestone, dark-to light-brown or gray, in layers from 2 to 10 inches thick and separated by layers of dark-gray or black shale. Some layers are flat and flaggy; others are concretionary and nodular. The fossil *Styliolina fissurella* is abundant. Useful as a stratigraphic marker.	
				Penn Yan shale	60	Shale, dark-gray, and mud rock containing thin beds of black shale, many layers of nodular limestone, and calcareous nodules.	
				Geneseo shale	45	Shale, black, bituminous, similar in appearance to the Marcellus but almost devoid of fossils. Includes some interbedded limestone layers. Lenses of fossiliferous pyrite and marcasite as much as 7 inches thick and 1 inch to 10 feet long separate the Genesee formation from the underlying Moscow shale where the Tully is absent west of Canandaigua Lake.	
	Middle		Tully limestone		7	Limestone, black when fresh and light bluish-gray when weathered, hard, dense, and fine textured. Thickest on eastern border of county and pinches out in central part. Where present, it serves as a good stratigraphic marker.	
		Hamilton	Moscow shale		125	Shale, dark-gray, soft, calcareous. Lighter in color and more fossiliferous than other formations of the Hamilton group.	

Table 1.--Age and description of bedrock formations (Continued)

<table>
<tr><th>System</th><th>Series</th><th>Group</th><th>Formation</th><th>Member</th><th>Thickness (feet)</th><th>Character of material</th><th>Water-bearing unit and approximate thickness (see table 2)</th></tr>
<tr><td rowspan="10">Devonian</td><td rowspan="10">Middle</td><td rowspan="9">Hamilton</td><td>Moscow shale</td><td>Menteth limestone</td><td>1</td><td>Limestone, medium-gray, irregularly laminated with thin argillaceous bands.</td><td rowspan="9">Upper shale aquifer 1,500 feet</td></tr>
<tr><td rowspan="5">Ludlowville shale</td><td></td><td>55</td><td>Shale, bluish and brittle. This part of the formation has been called the Deep Run member by G. A. Cooper (1930).</td></tr>
<tr><td>Tichenor limestone</td><td>1</td><td>Limestone, resistant to weathering. Forms waterfalls in many of the ravines near the northern part of Canandaigua Lake.</td></tr>
<tr><td></td><td>65</td><td>Shale, light-to dark-blue and gray. Includes several thin layers of limestone. Called Wanakah shale member by Cooper (1930).</td></tr>
<tr><td></td><td>65</td><td>Shale, black. Called Ledyard member by Cooper (1930).</td></tr>
<tr><td>Centerfield limestone</td><td>20</td><td>Limestone, coral-rich. Includes several layers of shale.</td></tr>
<tr><td rowspan="2">Skaneateles shale</td><td></td><td>225</td><td>Shale, dark-gray to black. Similar to Marcellus but has a somewhat higher calcium-carbonate content.</td></tr>
<tr><td>Stafford limestone</td><td>2/3</td><td>Limestone, dark-gray when fresh and brownish gray when weathered, massive, fine-grained, argillaceous.</td></tr>
<tr><td>Marcellus shale</td><td></td><td>60</td><td>Shale, black when fresh and gray when weathered, fossiliferous. Includes some thin, calcareous layers and many large calcareous concretions. Includes Cardiff shale of New York State Museum Reports.</td></tr>
<tr><td rowspan="2"></td><td>Onondaga limestone</td><td></td><td>100</td><td>Limestone, very dark gray when fresh, bluish-gray when weathered, and dense textured. Layers are from 6 inches to 3 feet in thickness and are commonly separated by thin layers of finely laminated shale. The Onondaga contains an abundance of silicified fossils and several layers contain nodules of dark chert (flint). The chert and silicified fossils, being more resistant to weathering than the rest of the rock, usually stand out above the weathered surface of the limestone. The upper part of the formation is free of chert as is a thinner coral-rich layer near the base. A layer of sandstone several inches thick, which occurs at the base of the Onondaga, was once considered to be the Oriskany sandstone but it has since been shown to be the basal, Springvale zone of the Onondaga limestone (Chadwick, 1919, p. 42).</td><td rowspan="3">Limestone aquifer 170 feet</td></tr>
<tr><td rowspan="3">Silurian</td><td rowspan="3"></td><td>Cobleskill dolomite</td><td></td><td>20</td><td>Dolomite, gray and thin-bedded in top half of formation. Shale and impure, dark-blue limestone in lower half of formation. Difficult to distinguish from underlying Bertie limestone in most outcrops.</td></tr>
<tr><td rowspan="2">Salina</td><td>Bertie limestone</td><td></td><td>50</td><td>Limestone, shaly, drab or gray. Includes some layers of dolomite. Particularly well known for fossil eurypterids.</td></tr>
<tr><td>Camillus shale</td><td></td><td>500</td><td>Shale, light-gray. Includes beds of dolomitic limestone near top, layers of gypsum and anhydrite in upper part, and layers of salt (NaCl) in the lower part. The gypsum, anhydrite, and salt have been removed from surface exposures by weathering.</td><td>Lower shale aquifer 500 feet</td></tr>
</table>

many of the larger outcrops of the county. The gentle folding of the rocks may be observed in a few exposures, such as those along Flint Creek, near the southern boundary of the village of Phelps; along Rocky Run, a stream about one mile southwest of Clifton Springs; and along Tannery Creek about one mile southeast of the village of Naples.

Joints are fractures or partings which interrupt the physical continuity of rock masses. They generally result from stresses set up in the crust of the earth by tension or shear forces. The rocks underlying Ontario County display a fairly consistent joint pattern in which two sets, one oriented N. 40° W. and the other N. 75° E., are most prominent. The spacing between adjacent joints varies from a few inches to several feet and is not uniform for any one formation. However, the joints are more closely spaced in the shales than in the limestones and sandstones. Joints and other openings tend to close up with increased depth because of the increased pressure of overlying earth materials.

Bedrock Topography

The approximate altitude of the top of bedrock in Ontario County is shown in figure 3. Data on which the figure is based were obtained from bedrock outcrops, wells, test holes, lake surveys, and seismic studies. Due to the lack of detailed data, the contours on the map are generalized and therefore do not reflect minor irregularities in the bedrock surface.

As may be seen in figure 3, the topography of the bedrock in the southwestern quarter of the county differs considerably from the topography of the bedrock in the remainder of the county. The bedrock surface in the southwestern part is characterized by several high hills which are separated from one another by deep valleys whereas the bedrock surface in the remainder of the county is relatively flat and slopes gently toward the north in most places.

Three of the valleys in the southwestern part of the county are occupied by lakes of the Finger Lakes group (Canandaigua Lake, Canadice Lake, and Hemlock Lake). Most of the bedrock hills in this area are elongated in a north-south direction and are steep-sided on all but the north slope which is relatively gentle. The maximum known altitude of the bedrock surface is about 2,120 feet above sea level at well Ot 761 on Worden Hill 6 miles southeast of the village of Honeoye. The minimum altitude of the bedrock surface is some value smaller than 415 feet - the lowest altitude yet measured for the bottom of Canandaigua Lake. Maximum relief of the bedrock surface in this part of the county is thus over 1,700 feet. The thickness of unconsolidated deposits underlying Canandaigua Lake is not known. In his discussion of the preglacial drainage of the Genesee River, Fairchild (1935, p. 167) suggested that the altitude of the rock floor in the valley that extends southwestward from the village of Naples is less than 200 feet. Data from wells Ot 743 and Ot 784 (table 10) indicate the altitude of the rock floor is probably at least 700 feet and may be as much as 1,000 feet.

In the central and northern parts of the county, the bedrock surface is relatively flat, with a gentle slope to the north. A small valley has been cut into the relatively flat surface of the bedrock in the Fishers

area in the northwestern part of the county (fig. 3 and 4). As the valley is now filled with glacial debris, it was undoubtedly formed during or before Pleistocene time. The altitude of the top of bedrock in the bottom of the valley is about 250 feet above sea level. A map included in a report on the ground-water resources of Monroe County (Leggette, Gould, and Dollen, 1935) indicates that the abandoned valley of the Irondogenesee River (preglacial Genesee River) passes through the Fishers area. Fairchild (1935, p. 167 and 169), using this map and data from wells in other parts of the region as a basis, stated that glacial drift with a minimum thickness of 715 feet underlies the Fishers area. The well, test-hole, and seismic data presented in figure 4 shows that the thickness of drift in this valley is less than 200 feet in most places, but may reach a maximum thickness of 400 feet.

Figure 3 shows also that a low north-south trending trough has been cut in the bedrock along the eastern margin of the county north of Geneva. Possibly this is a segment of the channel of the main stream which, according to Fairchild (1935, p. 160), drained central New York in preglacial time.

GROUND WATER

Ground water in Ontario County occurs in both the unconsolidated deposits and in the bedrock. Information about the occurrence and availability of ground water in the county was obtained from the records of 1,130 wells, 170 test holes, and 49 springs. Information about the quality of ground water was obtained from the analyses of 101 water samples. The records for 767 wells, 34 test holes, and 49 springs on which data are relatively complete, are given in tables 10 and 11.

Principles and Definitions

Water that occurs in pore spaces or other openings in rocks is termed subsurface water. Such water occurs both in the zone of saturation and in the zone of aeration. The plane of separation between these zones is known as the water table. The zone of saturation lies below the water table and in this zone all interconnected openings are filled with water. Water within the zone of saturation is called ground water. The zone of aeration lies above the water table and contains air and other gases, in addition to water.

Nearly all subsurface water is derived from precipitation. One inch of precipitation on an area of 1 square mile provides 17 million gallons of water. Thus, with an average annual precipitation of about 32 inches, the total precipitation on the 649 square miles of Ontario County is about 353 billion gallons. However, as most of the precipitation runs off the surface of the land to streams or is returned to the atmosphere through evaporation and transpiration, only a small part reaches the zone of saturation. Among the factors determining the amount of water that is absorbed by the ground are the following: (1) the porosity and permeability of the surficial materials, (2) the slope of the land, (3) the amount and kind of vegetal cover, and (4) the intensity and amount of precipitation. Thus, rain falling at a slow, steady rate on dry, permeable, flat ground results in more infiltration than rain falling at a rapid rate on moist, steep, relatively impermeable ground.

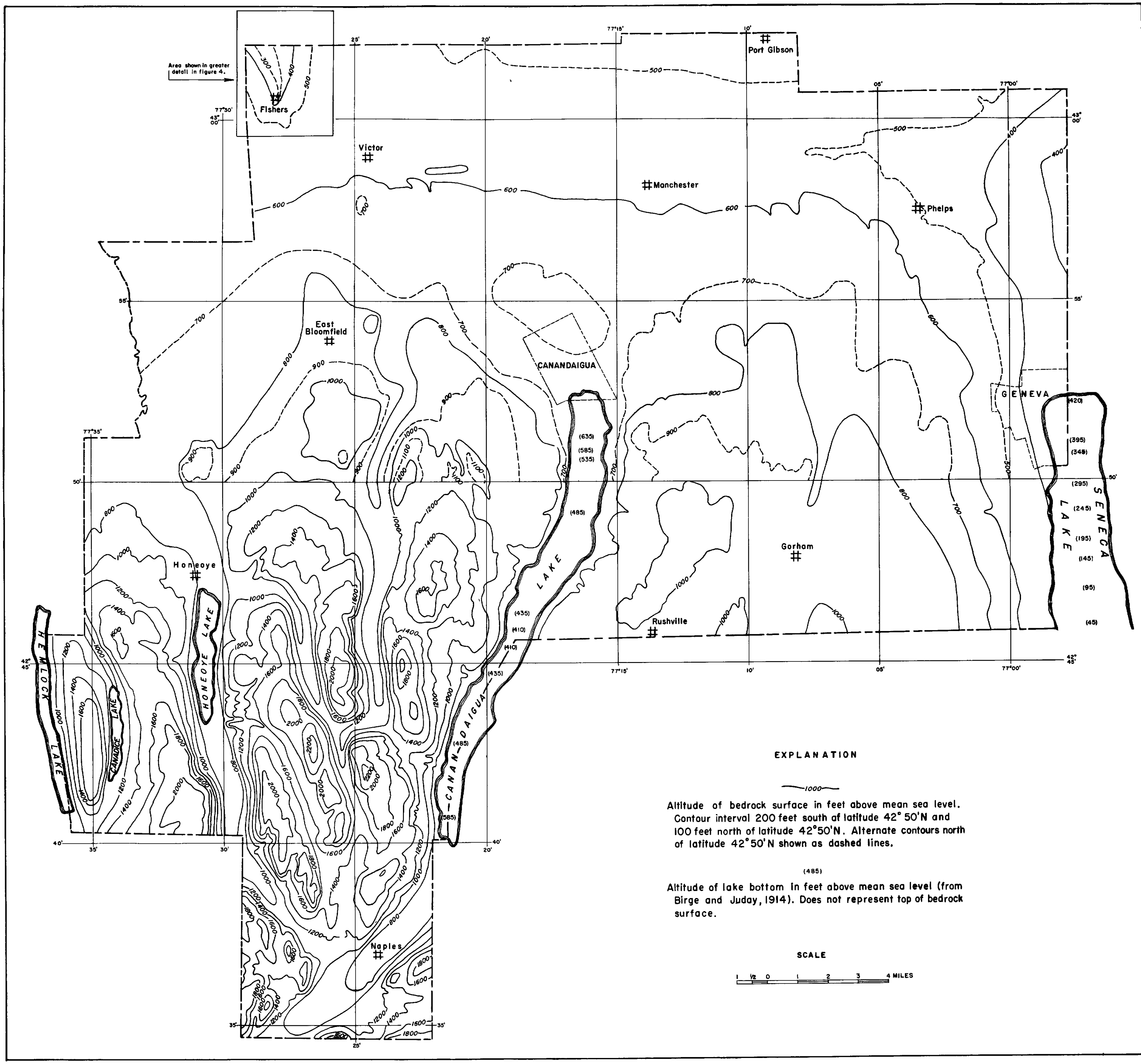

Figure 3.--Map of Ontario County showing the topography of the bedrock surface.

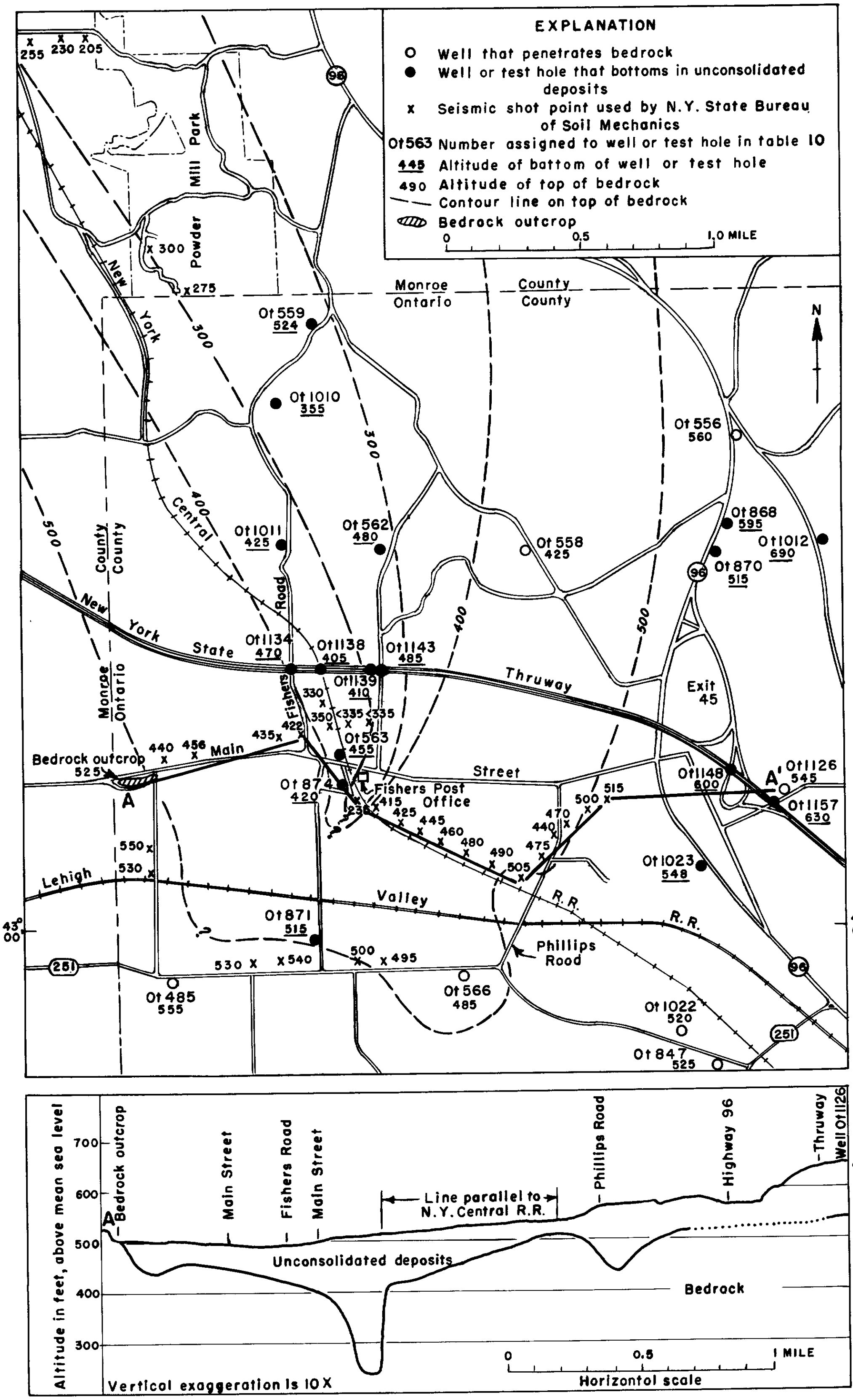

Figure 4.--Map of the Fishers area showing topography of the bedrock surface.

Once water reaches the zone of saturation it begins to move laterally under the influence of gravity toward points of discharge, such as springs, wells, lakes, or streams. Water thus in transit may occur under either water-table or artesian conditions. Where ground water partially fills a permeable bed, its surface is free to rise and fall. Such water is unconfined and is said to be under water-table conditions. Where the water completely fills a permeable bed that is overlain by a relatively impermeable bed, its surface is not free to rise above the base of the confining bed and it is said to be under artesian conditions. Water under artesian conditions is not necessarily under sufficient pressure to rise above the land surface.

A formation in the zone of saturation that is sufficiently permeable to transmit water in usable quantities to wells or springs is called an aquifer. Areas in which aquifers are replenished are called recharge areas. Areas in which water is lost by natural seepage from aquifers are called discharge areas.

The quantity of water stored in an aquifer depends on the porosity, or percentage of the total volume that is occupied by pores and other openings. The rate at which water moves in aquifers, and the rate at which it may be withdrawn through wells or discharged by springs is controlled by the permeability, or the capacity of the rock to transmit water.

Occurrence

On the basis of the types of openings in which the ground water occurs, the geologic formations in Ontario County may be divided into two groups: (1) consolidated rocks of Paleozoic age and (2) unconsolidated deposits of Pleistocene and Recent age. In the unconsolidated deposits, most of the openings consist of pore spaces between the constituent grains. In the consolidated rocks, on the other hand, the intergranular openings are extremely small and most of the ground water occurs in bedding planes, joints, and other fractures which have developed since the rocks were consolidated. The porosity differs markedly between the consolidated rocks and the unconsolidated deposits. The openings developed along bedding planes, joints, and other fractures in the consolidated rocks occupy a relatively small proportion of the total volume of the rock. Thus, the porosity of most of these rocks is probably less than 5 percent. In the unconsolidated deposits, however, openings exist between the constituent grains and, depending on the degree of sorting, may occupy 30 percent or more of the total volume of the deposit.

The permeability of both the consolidated rocks and the unconsolidated deposits also ranges widely. Thus, those parts of the consolidated rocks in which the joints and other cracks are relatively closely spaced have a much higher permeability than those parts in which joints and cracks are widely spaced. Similarly, those unconsolidated deposits which are composed of well sorted, coarse-grained material, such as stratified sand and gravel, have a much higher permeability than unsorted deposits composed of particles ranging in size from clay to boulders, such as till.

The thickness, character, and water-bearing properties of the consolidated rocks and unconsolidated deposits underlying Ontario County are summarized in table 2. Most of the information in this table and in the

Table 2.--Character, occurrence, and hydrologic properties of the water-bearing units

Class		Water-bearing unit	Maximum thickness (feet)	Character and occurrence of material	Water-bearing properties
Unconsolidated deposits		Recent deposits	20	Clay, silt, sand and gravel deposited on the flood plains of present-day streams.	Not important as source of water because of limited areal extent and because it is generally only a few feet thick. Restricted to scattered areas adjacent to streams.
	Pleistocene deposits	Coarse-grained deposits (Sand and gravel)	200	Sand and gravel, rounded and well sorted by fast-moving water from melting glacial ice or from upland areas. Occurs in scattered deposits between drumlins in the northern part of the county, as kames and valley filling deposits in the northwestern part, and in small scattered deposits south of Naples and near Gorham. Overlain by lake clays in some areas.	Most prolific sources of water in the county. Yields of wells range from 0.5 to 500 gpm, average 21 gpm. Moderate to large supplies obtainable from properly constructed wells especially in areas where induced infiltration from streams and lakes is possible. Depths of wells range from 7 to 326 feet below land surface, average 72 feet. Water levels range from 200 feet below land surface to 7 feet above land surface, average 24 feet. Contain two types of water, one high in sulfate and the other high in bicarbonate. The sulfate-type water has an average dissolved solids content (in 6 samples) of about 1,700 ppm and occurs only in those deposits directly underlain by the Camillus shale of Salina group. The bicarbonate-type water has an average dissolved solids content (in 2 samples) of about 350 ppm and occurs both in areas underlain by bedrock younger than the Camillus shale and in areas directly underlain by the Camillus shale.
		Fine-grained deposits (Silt and clay)	70	Well-sorted fine sand, silt, and clay deposited in glacial lakes. Blanket most of the low-lying areas of the county that were inundated by glacial lakes.	Yield little water. Generally act as confining beds where underlain by permeable deposits.
		Till	150	Heterogeneous mixture of clay, silt, sand, gravel, and boulders deposited from glacial ice. Crops out in scattered areas in northern part of county but blankets most of the central and southern parts. Generally thin except where it forms drumlins.	Extensively tapped by dug wells. Relatively impermeable. Yields only a few hundred gallons a day to large-diameter wells.
Consolidated rocks	Paleozoic rocks	Sandstone aquifer 1/	1,000	Predominantly interbedded layers of siltstone, shale, and some sandstone. Differs from the upper shale aquifer in that its beds are, on the whole, coarser-grained and less calcareous. Forms the cap rock of many of the highest hills in the southern part of the county.	Yields of individual wells range from 1 to 15 gpm, average 6 gpm. Depths of wells range from 65 to 200 feet, average 101 feet. Water levels range from 7 to 150 feet below land surface, average 38 feet. Contains bicarbonate type water with relatively small amount of dissolved solids.
		Upper shale aquifer	1,500	Predominantly shale with a few thin interbedded layers of limestone. Shales in the lower part are somewhat calcareous whereas shales in the upper part are arenaceous. Crops out in more than half of the county as a belt about 12 miles wide extending in an east-west direction across the central part of the county.	Yields of individual wells range from 0.2 to 40 gpm, average 6 gpm. Depths of wells range from 12 to 338 feet, average 100 feet. Water levels range from 1.5 feet above land surface to 190 feet below land surface, average 24 feet. Contains bicarbonate-type water. Dissolved solids in 17 samples of water ranged from 246 to 1,050 ppm and averaged 497 ppm. Water generally hard and high in iron.
		Limestone aquifer	170	Limestone and some dolomite. Chert nodules in the Onondaga limestone make drilling slow and difficult. Crops out in an east-west belt from 3 to 5 miles wide across the northern part of the county.	Yields of individual wells range from 0.5 to 300 gpm, average 22 gpm. Supplies the water used by some small industries and by the Shortsville public supply. Depths of wells range from 18 to 286 feet, average 65 feet. Water levels range from 6 to 157 feet below land surface, average 25 feet. Contains bicarbonate-type water. Dissolved solids in 6 samples of water ranged from 352 to 1,100 ppm, average 648 ppm.
		Lower shale aquifer	500	Predominantly a light-colored shale with beds of dolomitic limestone near the top, layers of salt (NaCl) in lower sections, and beds of gypsum and anhydrite in upper sections. Salt, gypsum, and anhydrite are found only in subsurface sections as weathering has removed them from surface exposures. Crops out in an east-west belt from 1 to 5 miles wide along the northern boundary of the county.	Yields range from 0.5 to 128 gpm, average 20 gpm. Depths of wells range from 26 to 200 feet, average 78 feet. Water levels range from 8.5 feet above land surface to 96 feet below land surface. Contains two types of water, one high in sulfate with an average dissolved solids content (in 4 samples) of about 1,800 ppm and the other high in bicarbonate with an average dissolved solids content (in 2 samples) of about 500 ppm. Bicarbonate-type water is available in relatively small quantities from shallow wells in recharge areas. Sulfate-type water is yielded by most deep wells.

1/ See table 1 for a list of the geologic formations which make up the four consolidated rock aquifers.

following discussion of the occurrence of water is based on the records of wells and springs listed in tables 10 and 11. The locations of wells and springs for which records are included in this report are shown in plate 1.

Consolidated Rocks

The consolidated rocks, also called "bedrock", are an important source of water in the county because they underlie the entire area and because they will generally yield sufficient water to supply domestic, farm, and other relatively small needs. The consolidated rocks consist of shale, sandstone, limestone, dolomite, and gypsum.

In upland areas, where bedrock crops out or is covered only by a thin veneer of unconsolidated deposits, water is generally under water-table conditions. Water-table conditions prevail also at shallow depth in the bedrock in those lowland areas where the bedrock is overlain by relatively permeable unconsolidated deposits. On the other hand, artesian conditions occur in both upland and lowland areas where the bedrock is overlain by relatively impermeable deposits such as till or lake-bottom sediments, or where the joints and other openings in the upper part of the bedrock are filled with impermeable material.

As may be seen in table 3, the yields of 356 wells tapping bedrock formations in Ontario County range from 0.5 to 300 gpm and average 12 gpm. The yields of individual wells tapping bedrock depend on several factors. The most important are the characteristics of joints and other openings, the permeability and thickness of overlying unconsolidated deposits, and the topographic position.

Because the openings along joints and bedding planes provide the principal channels for the movement of water in the bedrock of Ontario County, the yields of wells tapping the bedrock are determined largely by the spacing, continuity, and dimensions of the openings. The spacing of these openings is irregular, ranging from a few inches to many feet. The width of the openings is generally less than 0.1 inch but in some limestones and other soluble rocks, joints and bedding planes have been enlarged considerably by solution processes. Openings in bedrock tend to become smaller with depth because of the increased pressure of overlying earth materials. Thus, joints below a depth of a few hundred feet are generally effectively closed.

As may be seen in table 3, the average yield of wells tapping rocks which are relatively soluble - rocks of the lower shale aquifer and the limestone aquifer - is about 20 gpm. On the other hand, the average yield of the wells tapping the less soluble formations- the rocks of the upper shale aquifer and the sandstone aquifer - is 6 gpm. Sustained yields from wells tapping bedrock which is overlain by more than 15 feet of highly-permeable deposits may be expected to be much larger than yields from similar wells tapping bedrock which is not overlain by unconsolidated deposits or is overlain by relatively impermeable deposits.

The effect of topography on the yield of wells is difficult to differentiate from the effects of other factors. However, because the bedrock in valleys is recharged not only from precipitation falling on the valleys but by ground water percolating to the valleys from adjoining hills, the yields

Table 3.--Yield, depth, and water level of wells drawing from the coarse-grained unconsolidated deposits and the bedrock units a/

		Yield (gallons per minute)				Depth of wells below land surface (feet)				Water level referred to land surface (feet)			
		Average	Range		No. of wells	Average	Range		No. of wells	Average	Range		No. of wells
			Low	High			Low	High			Low	High	
Uncon- solidated deposits	Coarse-grained	21	0.5	500	150	72	7	326	196	24	-200	+7	179
Consolidated rocks	Sandstone aquifer	6	1	15	17	101	65	200	19	38	-150	-7	17
	Upper shale aquifer	6	0.2	40	212	100	12	338	245	24	-190	+1.5	214
	Limestone aquifer	22	0.5	300	81	65	18	286	79	25	-157	-6	70
	Lower shale aquifer	20	0.5	128	23	78	26	200	30	29	- 96	+8.5	28
	All bedrock	12	0.5	300	356	95	12	338	398	27	-190	+8.5	350

a/ Based mainly on reported data. Does not include data for wells known to draw from two or more units. Descriptions of formations comprising the four bedrock aquifers are included in table 1.

of bedrock wells in valleys tend to be greater than the yield of those on hills.

Many of the bedrock formations of Ontario County are hydrologically similar. Because of this similarity and in order to facilitate description and comparison of the consolidated rocks, all of the formations have been grouped into four units: the lower shale aquifer, the limestone aquifer, the upper shale aquifer, and the sandstone aquifer. Each of these is described in the section entitled "Water-bearing Units."

Unconsolidated Deposits

Unconsolidated deposits cover the bedrock almost everywhere in Ontario County. (See plate 3.) Water in these deposits occurs principally in the pore spaces between constituent grains and the quantity of water which a deposit can yield to wells is dependent on the size of the pores and degree of interconnection between pores. Where the pores are small or not connected, little or no water can be transmitted by the deposit.

Water in most of the unconsolidated deposits of the county is under water-table conditions. However, there are some parts of the county where sand and gravel is overlain by clay or other relatively impermeable material and in such places the water in the deposits is commonly under artesian conditions.

The materials which compose most of the unconsolidated deposits were derived from rock formations that crop out to the north - the direction from which the ice sheets advanced - and were transported to their present positions either by glacial ice, melt water from the ice sheet, or a combination of the two. Therefore, the materials comprising the unconsolidated deposits can, in a gross manner, be related with rock formations occurring to the north.

Because they were deposited by widely differing geologic processes, the unconsolidated deposits differ considerably in grain size and in degree of sorting. Using these characteristics, the unconsolidated deposits of the county have been subdivided into three general types: (1) coarse-grained stratified deposits, (2) fine-grained stratified deposits, and (3) till. Each of these types is described separately in the section entitled "Water-bearing Units."

Water Levels

Ground-water levels in Ontario County differ from one location to another in the same aquifer and from aquifer to aquifer in the same location. The average static water level for 529 wells in Ontario County is 26 feet below land surface. The lowest reported water level is 200 feet below land surface (in well Ot 937, drilled at the top of a hill composed principally of sand and gravel) and the highest with respect to land surface was 9.3 feet above land surface (in well Ot 900 which penetrates the Camillus shale of the Salina group in a lowland area).

Ground-water levels in individual wells fluctuate almost continuously in response to changes in the rates of recharge to and discharge from the par-

ticular water-bearing unit tapped by the well. The changes in water level during any period indicate the net change in the amount of ground water stored in aquifers in much the same manner as changes in water levels in surface reservoirs indicate net changes in surface-water storage. Water levels rise when rain or water derived from melting snow percolates downward to the zone of saturation. Discharge of ground water through springs, seepage into streams, evapotranspiration, and pumping of wells reduce the amount of water stored in the ground, resulting in a decline in water levels. In addition to fluctuations caused by changes in the amount of water stored in an aquifer, water levels in certain artesian wells also fluctuate in response to changes in barometric pressure, to earthquakes, and to other forces.

In order to observe the extent to which water levels in Ontario County fluctuate in response to changes in the rates of recharge and discharge and to other factors, records of the water-level fluctuations in well Ot 900 have been collected since May 1955. This well is 6 inches in diameter, 139 feet deep, and is cased through 11 feet of unconsolidated material to the top of the Camillus shale of the Salina group. The record for this well for the period May 1955 to May 1960 is shown graphically in figure 5. The water in the Camillus shale at the site of the well is under artesian conditions as indicated by the fact that the water level is above land surface. As there is no pumpage from the Camillus in the vicinity of the well, all fluctuations of the water level in this well are due to natural causes. It may be seen from figure 5, part A, that the dominant feature is an annual fluctuation of about 3 feet. During each 12-month period of record, the water level is generally highest during the spring of each year and lowest in the fall. The declining portion of the annual fluctuation corresponds to the growing season. (See figure 5, part B.) During the growing season much of the precipitation, which in other seasons would percolate to the zone of saturation, fails to reach the water table because the water is either evaporated at the land surface or is transpired by plants drawing from the zone of aeration. As may be seen in figure 5, part A, the rising phase of the annual fluctuation usually commences in the fall of each year, shortly after the end of the growing season when the amount of water lost by evapotranspiration decreases and the amount of water recharging the aquifer increases. Water levels usually follow a rising trend until spring. Figure 5, part A, also shows that some high water levels reflect heavy precipitation. For example, the rise of the water level in October and November 1955 reflects the exceptionally high precipitation during October. Likewise, the high water levels of June and July 1958 reflect the exceptionally high precipitation during those two months.

Figure 5, part C, which is a tracing from the original recorder chart, shows that the water level in well Ot 900 fluctuates almost constantly. The fluctuations appear to be due to two different causes: changes in storage in the aquifer, and changes in atmospheric pressure. The general decline of the water level during the period shown was a part of the seasonal decline. The semi-daily fluctuations are probably caused primarily by daily variations in atmospheric pressure. The temporary drop in the water level of about 0.2 foot, from the 17th through the 19th of September, was probably caused by a high-pressure atmospheric mass which is known to have passed through the area at the time. The small amount of precipitation recorded during this period had no apparent effect on the water level.

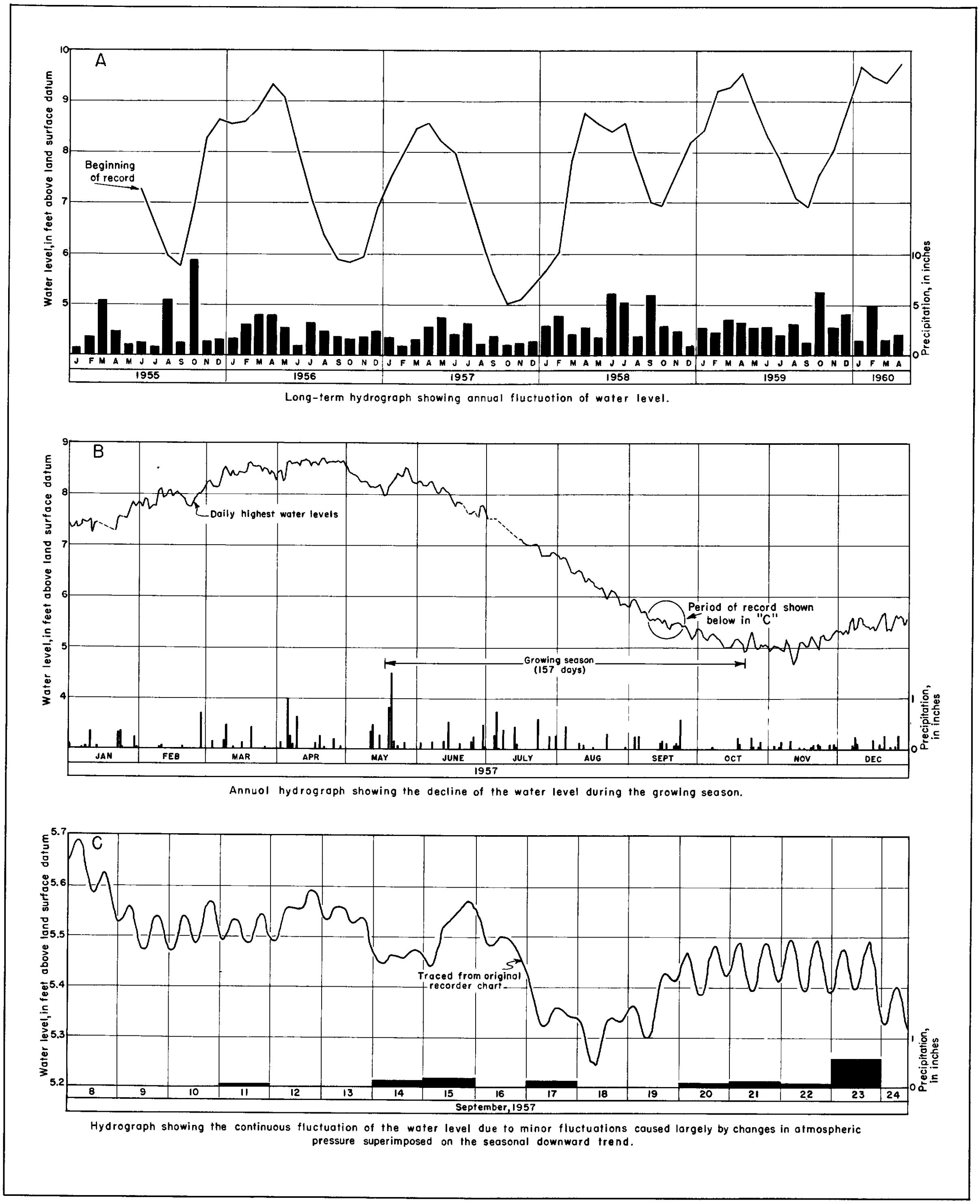

Figure 5.--Graphs showing water-level fluctuations in observation well Ot 900 and precipitation at Canandaigua. Well Ot 900, which is at New York State Thruway Interchange No. 43 near Manchester, taps water under artesian conditions in the Camillus shale of the Salina group.

Water-bearing Units

Consolidated Rocks

Lower shale aquifer

The Camillus shale of the Salina group is termed the lower shale aquifer in this report. (See table 1.) The outcrop area of the Camillus shale is predominantly a rural area but because of its proximity to the New York State Thruway it is likely to become highly developed in the future. Thus, it may be expected that the use of ground water will increase as the area develops. Data collected in the course of this investigation indicate that relatively large quantities of water are available from some parts of the Camillus. However, the quality of the water is commonly so poor that it is not suitable for many purposes.

Geologic characteristics.--The Camillus shale of the Salina group is the oldest rock that crops out at the land surface in Ontario County. It underlies the entire county, but its area of outcrop, which is the area in which most wells taking water from it are located, is confined to an east-west belt from 1 to 5 miles wide along the northern boundary of the county. (See plate 2.)

The Camillus shale, as used in this report, refers to the rock sequence overlying the Vernon shale of the Salina group, which consists of a few hundred feet of red and green shales, and underlying the Bertie limestone. According to this usage, all beds of salt, gypsum, and anhydrite in the Salina group in Ontario County are in the Camillus shale.

In most parts of the county, the Camillus is about 500 feet thick. However, erosion has reduced the thickness by several hundred feet in the area of outcrop.

The Camillus is predominantly a light-colored shale containing beds of dolomitic limestone near the top. The chemical composition of a sample of this shale is given in table 4. Layers of common salt (NaCl), gypsum, and anhydrite occur in unweathered parts of the Camillus but have been removed by leaching from surface exposures. Two layers of salt, one 35 feet thick and the other 15 feet thick were penetrated by well Ot 494 (table 9) in the central part of the county. Salt is being mined presently from the Camillus in several parts of central New York. Gypsum occurs in the upper part of the formation and has been mined from time to time by surface methods in the area of outcrop in the town of Phelps and Victor. A layer of gypsum which occurs from 104 to 110 feet below land surface has been mined by underground methods in an area about 1.5 miles northeast of the village of Victor. The chemical analysis of a sample of "run-of-the-mine" gypsum taken from a mine in the Camillus about 15 miles west of Ontario County (at Garbutt, Monroe County) is given in table 4.

Hydrologic characteristics.--Water probably enters the Camillus shale both by direct recharge through the overlying unconsolidated deposits in its area of outcrop and by percolation downward from overlying formations in the central and southern parts of the county. Yields of 23 wells in the Camillus average about 20 gpm and range from 0.5 to 128 gpm. The Camillus

Table 4.--Chemical composition of bedrock

(Percent by weight)

Determination	Lower shale aquifer		Limestone aquifer	Upper shale aquifer			Sandstone aquifer
	Gypsum 1/	Camillus shale of Salina group 2/	Onondaga limestone 3/	Ludlowville shale of Hamilton group 4/	West River shale member of Genesee formation 5/	Cashaqua shale member of Sonyea formation 6/	Gardeau shale member of West Falls formation 7/
SiO_2	2.93	54.5	14.85	28.1	63.5	60.6	57.8
Al_2O_3	1.92	12.9	7.18	8.7	16.5	16.8	19.4
Fe_2O_3	1.10	4.8	1.57	3.2	5.3	6.7	6.6
MgO	8.29	6.3	1.95	1.7	1.9	2.8	2.5
CaO	26.27	5.8	40.23	28.7	0.6	1.0	2.0
TiO_2	--	0.6	--	0.4	0.8	1.0	1.0
Na_2O	--	0.9	--	1.3	1.9	1.0	0.8
K_2O	--	0.7	--	1.7	3.6	2.9	4.2
Ignition loss	--	11.3	--	26.4	7.6	6.4	5.9
CO_2	11.02	--	33.76	--	--	--	--
Alkalis	--	--	--	--	--	--	--
Water	14.87	--	--	--	--	--	--
SO_3	33.83	--	--	--	--	--	--
Total	100.23	97.8	99.54	100.2	101.7	99.2	100.2

1/ "Run-of-the-mine" gypsum from Garbutt, Monroe County; George E. Willcomb, analyst (Newland and Leighton, 1910, p. 60).

2/ Camillus shale of Salina group from roadside 3 miles north of LeRoy, Genesee County, on State Highway 19, 20 miles west of Ontario County (New York State Dept. of Commerce, 1951, p. 348).

3/ Onondaga limestone from quarry of G. J. Fisher, Waterloo, Seneca County, 5 miles east of Geneva (Ries, 1901, p. 819).

4/ Ludlowville (?) shale of Hamilton group from along stream at intersection of U. S. Highway 20 and State Highway 36 in Genesee County about 15 miles west of Ontario County (New York State Dept. of Commerce, 1951, p. 348).

5/ West River shale member of Genesee formation or Middlesex shale member of Sonyea formation from point near State Highway 364, 3.5 miles south of Gorham (New York State Dept. of Commerce, 1951, p. 348).

6/ Cashaqua shale member of Sonyea formation from exposure 6 miles north of Naples on State Highway 21, Granger Point (New York State Dept. of Commerce, 1951, p. 348).

7/ Gardeau shale member of West Falls formation from 0.2 mile north of Strykersville, Wyoming County, 40 miles west of Ontario County (New York State Dept. of Commerce, 1951, p. 348).

aquifer and the limestone aquifer have the highest yields of any of the bedrock units in the county. (See table 3.) The depths of wells drawing from the Camillus average about 78 feet and range from 26 to 200 feet. Relatively large yields are available because the joints and bedding planes have been widened substantially by the dissolving action of ground water. Thus, the most productive parts of the Camillus may be expected to be those closest to the land surface where the ground water has been most effective in enlarging joints and other openings by solution.

Chemical character of the water.--At least two types of water, sulfate water and bicarbonate water, occur in the Camillus. The sulfate type has been in contact with and dissolved a part of the gypsum or anhydrite contained in the Camillus, whereas the bicarbonate type probably has contacted only those parts of the Camillus from which the gypsum and anhydrite have been removed by solution.

Much of the sulfate water is so highly mineralized that it is unsuitable for many uses. The dissolved solids content of 4 samples averaged 1,800 ppm and ranged from 858 to 2,360 ppm. Analyses indicate that it is generally more highly mineralized, has a higher hardness, and contains more sulfate than other ground water in the county. Most of the hardness of the sulfate water is of the noncarbonate type. Some sulfate water has a dark appearance and is accompanied by the odor-producing gas, hydrogen sulfide. The term "black sulfur water" has been applied locally to such water. The graph for well Ot 542 in figure 8 shows the chemical character of what is believed to be a typical sample of the sulfate water.

The bicarbonate-type water from the Camillus, although hard, has a relatively low mineral content when compared with the sulfate water. The dissolved solids content of water from wells Ot 109 and 531, two wells yielding bicarbonate-type water, is 604 ppm and 443 ppm respectively. The hardness of water from the same wells is 440 ppm and 420 ppm respectively, and is mainly of the carbonate type.

Limestone aquifer

The Bertie limestone of the Salina group, the Cobleskill dolomite, and the Onondaga limestone, are treated in this report as a single unit because they are all carbonate rocks and apparently act as a single hydrologic unit. The outcrop area of the limestone aquifer is fairly heavily populated (the villages of Victor, Shortsville, Manchester, and Phelps are located in or close to it) and this area is likely to become much more highly developed in the future because of its nearness to the New York State Thruway. Data collected in the course of this investigation indicate that water of usable quality and in moderate quantity may be obtained from parts of the area of outcrop of the limestone aquifer and that water in small quantity may be obtained in all parts of the area of outcrop.

Geologic characteristics.--The limestone aquifer directly overlies the Camillus shale of the Salina group in Ontario County. The area of outcrop forms an east-west belt from 2 to 5 miles wide across the northern part of the county. Rocks of the limestone aquifer crop out at the land surface, in the channels of several streams, and in some road cuts. A thickness of nearly 100 feet is exposed in a quarry (the Oaks Corners quarry of The

General Crushed Stone Co.) 4 miles northwest of Geneva. South of its area of outcrop, the limestone aquifer is overlain by the Marcellus shale of the Hamilton group, the oldest formation in the upper shale aquifer.

The total thickness of the limestone aquifer is about 170 feet. The base of the unit consists of the Bertie limestone of the Salina group, a layer about 50 feet thick, consisting of shaly limestone and some layers of dolomite. The Bertie limestone is overlain by the Cobleskill dolomite, a layer about 20 feet thick and consisting of interbedded layers of dark shale, impure limestone, and thin beds of gray dolomite. The upper 100 feet of the unit consists of the Onondaga limestone, a dark, dense-textured limestone, containing several layers of chert nodules. A chemical analysis of a sample of the Onondaga limestone is given in table 4.

Hydrologic characteristics.--Recharge to the limestone aquifer is probably derived from (1) precipitation in the area of outcrop, (2) water percolating downward from overlying formations in the area south of the area of outcrop, and (3) water percolating upward from underlying formations. As is the case with all other bedrock aquifers in the county, water in the limestone aquifer occurs primarily in joints and other openings. However, because the rocks of the limestone aquifer are primarily carbonates which are soluble in water containing carbon dioxide, many of the joints and cracks have been widened by solution processes. The yields of wells drawing from the limestone aquifer average 22 gpm and range from 0.5 to 300 gpm. Well Ot 1014, which derives its water from this unit, is reported to have been test pumped at a rate of 300 gpm for 48 hours. Two other wells tapping the aquifer, Ot 221 and Ot 222, supply wells for the village of Shortsville, are reported to be capable of yielding over 100 gpm each when pumped separately. The depths of 79 wells drawing from the limestone aquifer average 65 feet and range from 18 to 286 feet.

Chemical character of the water.--All samples of water from the limestone aquifer were of the bicarbonate type. The graph for Ot 222 in figure 8, shows the chemical character of what is believed to be a typical sample of the water. The dissolved solids content of 7 samples averaged 648 ppm and ranged from 285 to 1,100 ppm. The hardness of 8 samples averaged 400 ppm and ranged from 260 to 560 ppm. The hardness is generally of the carbonate type although some samples have a relatively high noncarbonate hardness.

Upper shale aquifer

The geologic units comprising the upper shale aquifer are treated here as a single unit because they are composed almost entirely of shales and because they are believed to act more or less as one hydrologic unit.

The area of outcrop of the upper shale aquifer is predominantly a rural area devoted to farming although the city of Canandaigua and several small villages are located in it. Water can be obtained from the aquifer in quantity sufficient to supply the requirements of individual residences and small farms. Some canning factories located in the area of outcrop have been unable to develop adequate supplies. Water from the upper shale aquifer is generally of good quality.

Geologic characteristics.--The outcrop area of the upper shale aquifer includes more than half of the county, covering an area about 12 miles wide in the north-south direction and extending across the full width of the county in the east-west direction. (See plate 2.) The aquifer consists of approximately 1,500 feet of shale and widely-spaced thin beds of limestone. As may be seen in the description of the various geologic units in table 1, the shale beds comprising the upper shale aquifer differ from one another in color, hardness, fissility, and mineral composition. The shale in the lower part tends to be more calcareous than the shale in the upper part. Table 4 contains chemical analyses of rock samples from the Ludlowville shale of the Hamilton group, the West River shale member of the Genesee formation, and the Cashaqua shale member of the Sonyea formation.

Hydrologic characteristics.--Most of the water recharging the upper shale aquifer is probably received directly from precipitation on the area of outcrop. As with the other bedrock aquifers, most of the water occurs in joints, bedding planes, and other fractures. However, as these shales are relatively insoluble when compared with the gypsum of the lower shale aquifer and the carbonate beds of the limestone aquifer, the openings in the upper shale aquifer are probably no larger now than they were when first developed. Also, as these shales are much weaker structurally than the more massive beds of the limestone aquifer, they are more easily compressed by the weight of overlying formations. For this reason, most openings are probably too small to transmit significant quantities of water at depths greater than a few hundred feet. The yields of 212 wells drawing from the upper shale aquifer average 6 gpm and range from 0.2 to 40 gpm. The depths of 245 wells drawing from this unit average 100 feet and range from 12 to 338 feet.

Chemical character of the water.--The water from the upper shale aquifer is of the bicarbonate type. Calcium and magnesium are the predominant cations in water from most parts of this unit but, as may be seen from the bar graph for well Ot 263 in figure 8, sodium is the predominant cation in water from other parts. The dissolved solids content in 17 samples averaged 497 ppm and ranged from 246 to 1,050 ppm. Twelve of the samples had no noncarbonate hardness and the noncarbonate hardness of the other five ranged from 10 to 157 ppm. (See figure 7.) The iron content was more than 0.3 ppm in 14 of the samples. Some wells drawing from this unit yield water containing hydrogen sulfide gas.

Sandstone aquifer

Most of the area of outcrop of the sandstone aquifer in Ontario County, approximately 80 square miles, is sparsely populated. For this reason, relatively little ground water is used in the area. However, water of good quality and in quantities adequate to supply the needs of small farms and individual residences can generally be obtained from this unit.

Geologic characteristics.--The sandstone aquifer is the youngest bedrock aquifer in Ontario County and consists mainly of interbedded layers of siltstone, shale, and some sandstone. It underlies the higher hills in the southwestern part of the county. (See plate 2.) The aquifer differs from the underlying unit in that the beds of the sandstone aquifer are, on the whole, more coarse-grained and less calcareous than those of the upper

shale aquifer. A chemical analysis of a sample of rock taken from a shaly section (Gardeau shale member of the West Falls formation) of the sandstone aquifer is given in table 4.

Hydrologic characteristics.--Most of the water recharging the sandstone in Ontario County falls as precipitation on the area of outcrop. Most of the water occurs in joints and bedding planes; however, as these rocks are relatively insoluble when compared with the rocks of the lower shale aquifer and the limestone aquifer, the openings in the sandstone aquifer are probably no larger now than they were when first developed.

The yields of wells drawing from the sandstone aquifer average 6 gpm and range from 1 to 15 gpm. The depth of wells drawing from this unit average about 100 feet and range from 65 to 200 feet.

Chemical character of the water.--Only one analysis of water (from well Ot 763) from the sandstone aquifer in Ontario County is available. This analysis shows water of the bicarbonate type, having a relatively high carbonate hardness, no noncarbonate hardness, and a dissolved solids content of 232 ppm.

Unconsolidated Deposits

Coarse-grained stratified deposits

The coarse-grained unconsolidated deposits in Ontario County are potentially the most productive water-bearing deposits in the county, though relatively undeveloped at the present time (1959).

Geologic characteristics.--Most of the coarse-grained stratified deposits were laid down during Pleistocene time in scattered areas in the lowlands and valleys either by melt water flowing from glacial ice or by water flowing from upland areas into glacial lakes. In several areas, the deposits are interbedded with - or overlain by - layers of finer-grained material. Because the particles comprising the deposits were laid down by relatively swift moving water, they are usually larger than silt in size, fairly well rounded, and well sorted. Individual layers containing particles which have a uniform grain size, range from less than an inch to many feet in thickness. Many of the individual beds have steep angles of dip while others are horizontal. The lateral extent of individual beds differs from one deposit to another, ranging from lenses only a few feet wide in places to at least several hundred feet wide in other places. Coarse-grained deposits are commonly as much as 30 to 40 feet thick and in places are as much as 200 feet thick. In a few localities, the coarse-grained deposits are so strongly cemented by calcium carbonate that they cannot be excavated with power shovels.

The coarse-grained deposits occur both at the surface, as may be seen in plate 3, and buried beneath a surficial cover of fine-grained materials. Coarse-grained deposits comprise the surface layer in approximately 15 percent of the county. The portion of the county underlain by buried coarse-grained deposits is unknown but is probably at least several percent. Specific areas in which coarse-grained materials form the most extensive surficial deposits are (1) the low areas between drumlins north of State

Highway 96 in the northern part of the county and (2) much of the towns of Victor and West Bloomfield.

The coarse-grained deposits in the area north of State Highway 96 were deposited around the drumlins as glacial outwash by water issuing from the melting ice sheet when the ice was located a short distance to the north. The thickness of these deposits is controlled to a large extent by the topography of the surface upon which they were laid down. In general, they range in thickness from a feather edge on the side of drumlins to as much as 50 feet in the lowlands between drumlins. Because many of these deposits were used as sources of sand and gravel during the construction of the New York State Thruway, they are now exposed at many places. The most extensive excavations have been made by the Ontario Sand and Gravel Co., Inc., in an area along State Highway 96 about 0.7 mile west of State Highway 14.

The extensive surficial deposit of coarse-grained materials in the towns of Victor and West Bloomfield has a typical "kame and kettle" topography consisting of hills which are low, irregularly shaped, and steep sided, and of valleys which are narrow and poorly developed in places and which are relatively broad, flat bottomed, and marked by shallow closed depressions in other places. As the bedrock surface in this area is relatively flat, thickness of the coarse-grained deposits is greatest in those areas now topographically high and least in low areas. Considerable sand and gravel has also been obtained from this area for use in road building. The most extensive excavations are those worked by the Hoadley Sand and Gravel Company about 2.5 miles southwest of Victor.

Other surficial deposits of coarse-grained material are scattered throughout the county. Of these, the deposits in the town of Naples and the deposit near the village of Gorham are the largest.

In many areas coarse-grained stratified deposits are buried beneath the fine-grained stratified deposits shown in plate 3. Underlying coarse-grained deposits are known to occur in (1) the town of West Bloomfield (record for well Ot 398), (2) the vicinity of the village of Honeoye (log for well Ot 889), (3) the city of Geneva and several square miles to the north (log for well Ot 3), (4) the vicinity of Canandaigua (log for well Ot 1075), and (5) a valley area (Berby Hollow) about 7 miles north of Naples (log for well Ot 1112).

Hydrologic characteristics.--In areas where coarse-grained stratified deposits form the surface layer, water is usually under water-table conditions and much of the water recharging the deposits is received directly as precipitation. In areas where coarse-grained deposits occur below the water table and are overlain by fine-grained deposits, water is usually under artesian conditions and the deposits are recharged either by direct percolation in areas of outcrop or by percolation through the overlying fine-grained deposits.

As mentioned earlier, most of the water in unconsolidated deposits occurs in the pore spaces between constituent grains. Because the pore spaces are relatively large in the coarse-grained deposits, the permeability of these deposits is generally much higher than the permeability of the other water-bearing materials - both bedrock and unconsolidated - in the county.

Coarse-grained stratified deposits in low-lying flat areas usually are situated better, with respect to sources of recharge and for the retention of the water they receive, than coarse-grained stratified deposits in high sloping areas. In a low-lying flat area, a coarse-grained stratified deposit may intercept water moving from upland areas, require a longer period to drain because of the small hydrologic gradient in lowland areas, and at some periods may receive recharge from nearby streams or lakes when the water level in the deposit is lowered by pumping. Coarse-grained stratified deposits on hillsides, on the other hand, discharge water, in many cases nearly as fast as it is received.

The yields of 150 wells drawing from the coarse-grained deposits average 21 gpm and range from 0.5 to 500 gpm. It is probable that the values for maximum and average yield would be considerably higher if there had been a need for larger quantities of water and if the wells had been fully developed. Of the 150 wells for which yields were reported, less than 10 were screened. The other wells were drilled and cased to layers coarse grained enough to yield the quantity of water needed by the owner, in most cases from 5 to 10 gpm.

Chemical character of the water.--Two types of water, one high in sulfate and the other high in bicarbonate, occur in the coarse-grained deposits of Ontario County. The sulfate type occurs only in those deposits in the area of outcrop of the Camillus shale of the Salina group, and although it is similar in composition to the sulfate water in the Camillus unit, it probably has a somewhat lower content of dissolved solids. The content of dissolved solids in 6 samples of this water averaged 1,743 ppm and ranged from 928 to 2,560 ppm. The hardness of 7 samples averaged 1,305 ppm and ranged from 692 to 1,760 ppm. Most of the hardness is of the noncarbonate type. The graph for well Ot 874 in figure 8 shows the chemical character of a more or less typical sample of the sulfate water from the coarse-grained deposits.

The bicarbonate water occurs both in the deposits located on the area of outcrop of the Camillus shale and in the deposits lying on bedrock units younger than the Camillus. The content of dissolved solids in 9 samples averaged 389 ppm and ranged from 278 to 620 ppm. The total hardness of 23 samples averaged 314 ppm and ranged from 188 to 490 ppm. Most of the hardness is of the carbonate type. (See figure 7.) The graphs for springs Ot 29Sp and Ot 39Sp in figure 8 show the chemical character of what are believed to be typical samples of this water.

Fine-grained stratified deposits

The fine-grained deposits of Ontario County are poor sources of water because they have a low permeability and, thus, will yield only small quantities of water to large-diameter wells. Their importance lies in the fact that they act as confining beds which retard the vertical movement of water.

Most of the fine-grained deposits in Ontario County were deposited during Pleistocene time in the quiet waters of glacial lakes which were impounded between the ice to the north and the uplands to the south. Most of the valleys and much of the lowland in the northern part of the county were occupied by such lakes during the waning stages of glaciation. The fine-grained

deposits in these areas consist of well-sorted layers of fine sand, silt, and clay.

As shown in plate 3, the most extensive deposits of fine-grained sediments are located in an irregular, discontinuous east-west band across the northern part of the county. Fine-grained deposits also occur in the valley of Flint Creek south of Gorham, in the valley of Mud Creek several miles north and south of Bristol Center, in the vicinity of Naples, and in several other smaller areas scattered throughout the county.

It must be emphasized that although these deposits yield little water, they are commonly underlain by more-permeable water-bearing materials which will yield small to moderate quantities of water. (See data for wells Ot 3, Ot 909, Ot 1031, and Ot 1074 in tables 9 and 10.)

Till

Till consists of earth debris deposited directly by the ice sheets during Pleistocene time, either during their advance or at the time of melting. Thus, it is chiefly unsorted material whose predominant characteristic is a wide range in grain size of its constituent particles. However, in a few places, thin lenses of sand or sand and gravel occur within the till. As may be seen in plate 3, till is the most extensive surface deposit in the county. Furthermore, it probably underlies many of the stratified deposits in the northern part of the county and therefore has a much greater extent than that indicated by the map of surficial deposits.

Drumlins, oval shaped hills consisting mainly of till deposited under moving ice, are prominent features in the northern part of the county. Drumlins in the county range in length from 0.5 to 1.5 miles and range in width from a few hundred feet to more than 0.3 mile. The direction of the long axes of the drumlins is approximately north-south. The height of many of the drumlins exceeds 100 feet. Till in the areas between drumlins and in the other parts of the county is generally less than 50 feet thick.

Because till consists of an unsorted mixture of particles ranging in size from clay to boulders, it has a low permeability. Water in usable quantities can generally be obtained from till only from large-diameter wells which provide a large area for the infiltration of water and a large volume for the storage of water between periods of use. The yield of most wells drawing from till is generally only a few hundred gallons a day. However, where the wells in till penetrate a sand lens or other permeable zone, the yield may be as much as 1 to 2 gpm.

Quality of Water

One of the most important considerations in the development of a water supply is the quality of water available at the site with respect to its intended use. Where the water is not entirely suitable, the treatment necessary to make the water usable becomes an additional consideration. Analyses showing the chemical composition of the water available in Ontario County are shown in table 5. This table contains 109 analyses of water samples from 64 wells, 8 springs, and 8 surface-water sources. Figure 6 is a map showing the location, both geographical and with respect to the type

Table 5.--Chemical analyses of water from selected ground-water and surface-water sources

Well or spring number: See section in text entitled "Well-Location System".

Location: For explanation of location coordinates, see section entitled "Well-Location System".

Water-bearing unit: Descriptions of aquifers are included in table 2.

Source of analysis: A, New York State Dept. of Health, Albany, N. Y.; B, U.S. Geol. Survey, Quality of Water Branch.

Manganese: Values in parenthesis indicate parts per million in solution at time of analysis.

Bicarbonate: Values in parenthesis calculated from alkalinity.

(All results in parts per million except pH, specific conductance, color, and turbidity)

Well or spring number	Location coordinates	Depth of well	Water-bearing unit	Source of analysis	Date of collection	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness (as $CaCO_3$) Total	Hardness (as $CaCO_3$) Noncarbonate	Alkalinity (as $CaCO_3$)	pH	Specific conductance (micromhos at 25°C)	Color	Turbidity
Ot 3	9L, 8.5S, 1.5E	135	Pleistocene sand and gravel	A	8/13/52	--	0.70	--	--	--	--	--	(343)	--	8.0	--	--	--	350	69	281	7.5	--	0	8
Ot 3	9L, 8.5S, 1.5E	135	do.	A	5/25/54	--	1.5	--	--	--	--	--	(323)	--	8.2	--	--	--	380	115	265	7.5	--	5	5
Ot 3	9L, 8.5S, 1.5E	135	do.	A	7/11/55	--	1.3	--	--	--	--	--	(409)	--	6.4	--	--	--	380	45	335	7.3	--	0	11
Ot 94	9K, 2.1S, 6.6E	16	do.	A	3/22/55	--	.03	--	--	--	--	--	(294)	--	32	--	--	--	490	249	241	7.5	--	5	Trace
Ot 94	9K, 2.1S, 6.6E	16	do.	A	3/28/56	--	.04	--	--	--	--	--	(276)	--	14	--	--	--	340	114	226	7.2	--	0	Trace
Ot 108 a/	9K, 1.9S, 3.6E	24	do.	B	8/20/52	11	1.9	(0.01)	246	55	5.5	2.4	304	584	12	1.1	0.3	1,140	840	591	--	7.2	1,380	0	--
Ot 109	9K, 1.6S, 3.6E	20	Camillus shale	A	8/ 7/49	--	.60	.10	--	--	--	--	(317)	192	3.2	--	--	604	440	180	260	7.5	--	0	Trace
Ot 153	9K, 2.8S, 5.7E	65	do.	A	8/ 7/49	--	.10	<.01	--	--	--	--	(295)	1,130	4.8	--	--	2,010	1,900	1,660	242	7.1	--	5	Trace
Ot 177 b/	9K, 13.8S, 12.5E	120	Pleistocene sand and gravel	B	8/20/52	13	2.7	(.00)	60	18	50	1.3	410	.1	2.1	.5	3.1	346	224	0	--	7.3	593	1	--
Ot 188	9K, 3.9S, 1.6E	29	Onondaga limestone	A	2/15/50	--	.10	<.01	--	--	--	--	(285)	64	25	--	--	508	320	86	234	7.2	--	5	Trace
Ot 215	9K, 7.8S, 1.1E	25	Pleistocene sand	A	12/16/47	--	<.03	<.01	--	--	--	--	(383)	36	84	--	--	--	400	86	314	7.5	--	7	Trace
Ot 216	9K, 6.9S, 1.1E	70	Skaneateles shale	A	2/15/50	--	.80	.01	--	--	--	--	(321)	167	47	--	--	636	420	157	263	7.4	--	5	5
Ot 219	9K, 6.9S, 3.3E	57	do.	A	2/16/47	--	4.0	.01	--	--	--	--	(576)	13	30	--	--	550	260	0	472	7.5	--	0	25
Ot 220	9K, 2.4S, 1.2E	107	Limestone and lower shale aquifers	A	1/ 3/56	--	.15	--	--	--	--	--	(278)	--	1.6	--	--	--	1,020	792	228	7.2	--	5	5
Ot 221	9K, 2.4S, 1.2E	88	Limestone aquifer	A	8/ 4/38	--	.03	--	--	--	--	--	(270)	--	3.2	--	--	--	448	227	221	7.5	--	0	Trace
Ot 222	9K, 2.4S, 1.2E	70	do.	A	8/11/35	--	.03	--	--	--	--	--	(240)	--	2.8	--	--	--	268	89	197	7.3	--	--	--
Ot 222	9K, 2.4S, 1.2E	70	do.	B	8/19/52	12	.20	(.00)	65	23	4.8	.9	273	34	4.5	.4	5.8	287	257	33	--	7.3	508	0	--
Ot 223	9K, 2.4S, 1.2E	82	Pleistocene sand and gravel and Onondaga limestone	A	8/11/38	--	.10	--	--	--	--	--	(251)	--	2.6	--	--	--	244	38	206	7.5	--	0	Trace
Ot 224	9J, 2.3S, 12.9E	15	Pleistocene sand and gravel	A	4/27/49	--	.20	--	--	--	--	--	(295)	--	100	.2	--	--	270	28	242	7.4	--	0	Trace
Ot 235	9J, 12.3S, 8.6E	26	Genesee formation	A	2/15/50	--	4.0	.05	--	--	--	--	(478)	14	86	--	--	563	500	108	392	7.0	--	5	25
Ot 263	9J, 13.2S, 10.3E	192	Moscow and Ludlowville shales	A	8/ 6/48	--	4.5	.13	--	--	--	--	(816)	--	230	--	--	1,170	230	0	669	6.9	--	5	45
Ot 263 c/	9J, 13.2S, 10.3E	192	do.	B	6/ 5/52	11	2.1	.90	76	16	285	2.6	769	2.0	185	.2	.5	963	256	0	--	7.1	1,630	7	--

a/ Aluminum, 0.0 ppm; copper, 0.00 ppm; zinc, 0.3 ppm.
b/ Aluminum, 0.0 ppm; barium, 0.0 ppm; copper, 0.00 ppm; lithium, 1.0 ppm; zinc, 0.0 ppm.
c/ Aluminum, 2.9 ppm; copper, 0.00 ppm; lithium, 2.1 ppm; phosphate, 0.00 ppm; zinc, 1.2 ppm.

Table 5.--Chemical analyses of water from selected ground-water and surface-water sources (Continued)

Well or spring number	Location coordinates	Depth of well	Water-bearing unit	Source of analysis	Date of collection	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness (as $CaCO_3$) Total	Hardness (as $CaCO_3$) Noncarbonate	Alkalinity (as $CaCO_3$)	pH	Specific conductance (micromhos at 25°C)	Color	Turbidity
Ot 263	9J, 13.2S, 10.3E	192	Moscow and Ludlowville shales	B	7/12/54	11	3.1	--	75	18	280		750	1.4	179	0.4	--	--	262	0	--	7.3	1,610	--	--
Ot 275	9J, 14.0S, 7.8E	95	Sonyea formation	A	2/15/50	--	2.0	0.03	--	--	--	--	(451)	23	.4	--	--	386	360	0	370	7.0	--	0	15
Ot 285	9J, 8.8S, 8.6E	150	Moscow and Ludlowville shales	A	2/15/50	--	1.0	<.01	--	--	--	--	(263)	17	1.8	--	--	257	190	0	216	7.8	--	0	5
Ot 287	9J, 12.8S, 5.4E	60	Genesee formation	A	2/15/50	--	.60	.10	--	--	--	--	(430)	26	45	--	--	482	460	107	353	7.2	--	9	5
Ot 332	9J, 3.8S, 10.8E	38	Onondaga limestone	A	5/28/48	--	1.5	<.01	--	--	--	--	(448)	141	86	--	--	815	560	193	367	7.1	--	5	5
Ot 371	9J, 1.8S, 6.0E	18	Bertie limestone	A	6/ 2/48	--	.35	<.01	--	--	--	--	(551)	106	76	--	--	1,100	480	28	452	7.0	--	12	5
Ot 374	9J, 2.7S, 3.9E	39	Onondaga limestone	A	7/31/49	--	.10	<.01	--	--	--	--	(456)	125	21	--	--	885	340	0	374	7.7	--	0	Trace
Ot 378	9J, 4.7S, 0.8E	190	Pleistocene sand and gravel	A	6/ 3/48	--	2.3	.03	--	--	--	--	(350)	1.0	.2	--	--	297	240	0	287	7.3	--	5	10
Ot 442	9K, 2.4N, 1.2E	175	Camillus shale	A	2/14/50	--	16	.30	--	--	--	--	(17)	1,280	3.0	--	--	2,250	1,020	1,010	14	6.8	--	5	100
Ot 451	9J, 8.0S, 7.1E	212	Ludlowville shale	A	2/15/50	--	.80	.01	--	--	--	--	(415)	92	38	--	--	553	420	80	340	7.4	--	15	Trace
Ot 515	9J, 2.3S, 11.2E	50	Pleistocene deposits and Cobleskill dolomite	A	2/22/48	--	2.5	.02	--	--	--	--	(309)	492	3.4	--	--	1,280	460	207	253	7.2	--	18	15
Ot 531	9K, 2.1N, 4.1W	40	Camillus shale	A	2/15/50	--	4.5	.03	--	--	--	--	(431)	27	21	--	--	443	420	67	353	7.2	--	0	25
Ot 534	9J, 5.1S, 9.7E	110	Skaneateles and Marcellus shales, and Onondaga limestone	A	2/14/50	--	.4	.01	--	--	--	--	(644)	5.2	13	--	--	597	112	0	528	7.4	--	0	5
Ot 542 d/	9K, 1.3N, 1.6W	82	Camillus shale	B	8/22/52	12	12	(.01)	564	82	4.8	2.0	258	1,490	6.2	1.5	.4	2,360	1,740	1,530	--	7.1	2,440	0	--
Ot 563	9K, 0.8N, 11.1W	63	Pleistocene sand	B	10/10/57	12	2.9	.00	526	98	26		180	1,510	36	.5	.6	2,560	1,720	1,570	--	7.0	2,580	7	--
Ot 570	9K, 0.3N, 7.7W	121	Pleistocene deposits	A	7/31/49	--	7.0	.01	--	--	--	--	(366)	991	8.8	--	--	1,870	1,300	1,000	300	7.1	--	10	75
Ot 582	9J, 6.2S, 5.2E	147	Skaneateles shale	A	7/30/48	--	1.5	.01	--	--	--	--	(383)	33	5.8	--	--	535	144	0	314	7.7	--	6	18
Ot 605	9J, 6.2S, 9.2E	26	Pleistocene deposits	A	8/ 2/48	--	1.5	--	--	--	--	--	(394)	41	9.2	--	--	413	260	0	323	7.5	--	15	6
Ot 618	9J, 10.2S, 6.0E	22	Pleistocene till	A	8/ 3/48	--	.15	.01	--	--	--	--	(388)	107	23	--	--	620	400	82	318	7.2	--	5	Trace
Ot 737	10J, 2.7S, 6.0E	100	West Falls formation (Hatch shale member)	A	2/15/50	--	1.3	.15	--	--	--	--	(357)	10	11	--	--	331	250	0	293	7.3	--	0	5
Ot 763	10J, 5.3S, 4.2E	72	West Falls formation	A	2/15/50	--	.03	.10	--	--	--	--	(206)	12	18	--	--	232	104	0	169	7.4	--	0	Trace
Ot 768	9J, 7.0S, 12.4E	130	Skaneateles and Marcellus shales	A	8/29/49	--	4.5	.04	--	--	--	--	(435)	45	15	--	--	480	290	0	357	7.4	--	0	25
Ot 771	9J, 2.1S, 4.5E	60	Onondaga limestone and Cobleskill dolomite	A	8/ 7/49	--	.20	.01	--	--	--	--	(416)	62	28	--	--	590	520	179	341	7.2	--	5	Trace

d/ Aluminum, 0.1 ppm; copper, 0.00 ppm; lithium, 2.2 ppm; phosphate, 0.0 ppm; zinc, 0.8 ppm.

Table 5.--Chemical analyses of water from selected ground-water and surface-water sources (Continued)

Well or spring number	Location coordinates	Depth of well	Water-bearing unit	Source of analysis	Date of collection	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness (as $CaCO_3$) Total	Hardness (as $CaCO_3$) Noncarbonate	Alkalinity (as $CaCO_3$)	pH	Specific conductance (micromhos at 25°C)	Color	Turbidity
Ot 805	9J, 13.7S, 7.7E	30	Sonyea formation	A	8/20/49	--	0.15	0.03	--	--	--	--	(271)	< 0.3	1.8	--	--	246	180	0	222	7.5	--	0	5
Ot 809	9J, 16.2S, 10.5E	54	Genesee formation	A	8/ 2/49	--	.30	.05	--	--	--	--	(1,150)	1.6	24	--	--	1,050	360	0	943	7.1	--	10	5
Ot 813	10J, 3.1S, 7.2E	87	do.	A	8/29/49	--	1.5	.10	--	--	--	--	(272)	5.5	7.4	--	--	251	200	0	223	7.4	--	0	8
Ot 815 e/	9J, 7.1S, 9.6E	183	Ludlowville and Skaneateles shales	B	8/19/52	18	2.1	(.01)	60	43	14	1.5	386	21	20	1.0	.7	370	326	10	--	7.5	649	0	--
Ot 821	9K, 4.0S, 1.5E	26	Onondaga limestone	A	2/14/50	--	.15	.01	--	--	--	--	(290)	37	4.2	--	--	352	260	22	238	7.0	--	5	Trace
Ot 822	9K, 5.8S, 0.7E	130	Skaneateles and Marcellus shales	A	9/ 6/49	--	.25	.04	--	--	--	--	(595)	12	7.4	--	--	538	280	0	488	7.1	--	2	Trace
Ot 832	9J, 8.2S, 6.8E	150	Ludlowville and Skaneateles shales	A	2/15/50	--	1.0	<.01	--	--	--	--	(238)	4.7	20	--	--	256	44	0	195	8.1	--	0	10
Ot 840 f/	9J, 2.3S, 12.9E	--	---	A	3/14/51	--	1.5	--	--	--	--	--	(271)	--	140	.4	--	--	666	444	222	7.2	--	5	40
Ot 841	9J, 2.3S, 12.9E	27	Pleistocene sand	A	2/23/51	--	.80	--	--	--	--	--	(277)	--	--	.2	--	--	290	63	227	7.2	--	10	5
Ot 842	9K, 14.2S, 5.6E	31	Pleistocene sand and gravel	A	5/ 6/55	--	.08	--	--	--	--	--	(562)	--	7.0	.05	--	--	490	29	461	6.9	--	0	Trace
Ot 866	9J, 0.5S, 6.8E	26	Camillus shale	A	4/ 7/54	--	.20	--	--	--	--	--	(270)	--	3.0	--	--	--	510	288	222	7.2	--	0	Trace
Ot 866	9J, 0.5S, 6.8E	26	do.	A	11/16/55	--	.15	--	245	26	--	--	(305)	337	6.4	--	--	858	720	470	250	7.3	--	0	Trace
Ot 868	9J, 1.5N, 3.0E	117	Pleistocene sand and gravel	A	6/ 9/53	--	.10	--	--	--	--	--	(199)	--	3.6	--	--	--	230	67	163	7.6	--	0	Trace
Ot 869 g/	9J, 0.7N, 1.9E	102	Pleistocene sand	B	10/11/57	11	.14	.08	--	--	10		270	453	6.4	.0	6.1	928	692	470	--	8.3	1,160	5	--
Ot 874	9J, 0.7N, 1.6E	90	Pleistocene sand and gravel	B	10/11/57	13	.06	.02	--	--	7.8		243	896	16	.5	.6	1,610	1,140	940	--	7.1	1,800	7	--
Ot 889	10J, 3.0N, 0.6W	43	do.	A	2/ 7/57	--	.15	--	--	--	--	--	(160)	--	10	--	--	--	188	57	131	8.1	--	0	Trace
Ot 900	9K, 1.7S, 1.0E	135	Camillus shale	A	9/ 9/53	--	1.3	--	--	--	--	--	(238)	--	360	--	--	--	2,900	2,700	195	7.9	--	0	75
Ot 914	9J, 4.5S, 9.6E	92	Skaneateles and Marcellus shales, and Onondaga limestone	A	7/25/48	--	.25	.02	--	--	--	--	(384)	121	15	--	--	572	380	65	315	7.3	--	2	6
Ot 1063	9K, 10.8S, 11.4E	47	Pleistocene sand and gravel	A	2/23/54	--	.70	--	--	--	--	--	(328)	--	6	--	--	--	400	131	269	7.5	--	13	5
Ot 1063	9K, 10.8S, 11.4E	47	do.	A	3/23/55	--	.10	--	--	--	--	--	(348)	--	9.6	--	--	--	380	95	285	7.5	--	0	Trace
Ot 1122 f/	9J, 0.5S, 7.0E	165	Camillus shale	A	4/15/54	--	7.5	--	--	--	--	--	(334)	--	380	--	--	--	2,100	1,830	274	7.1	--	15	260
Ot 1123	9K, 1.9S, 3.9E	55	do.	A	9/26/56	--	.22	--	--	--	--	--	(387)	--	62	--	--	--	760	443	317	7.1	--	5	Trace
Ot 1124	9L, 3.3S, 1.1E	100	do.	A	4/ 5/54	--	.35	--	--	--	--	--	(243)	--	70	--	--	--	2,700	2,500	199	7.1	--	15	30
Ot 1124	9L, 3.3S, 1.1E	51	Pleistocene sand and gravel	A	5/26/54	--	.15	--	--	--	--	--	(207)	--	15	--	--	--	940	770	170	7.3	--	0	Trace
Ot 1124	9L, 3.3S, 1.1E	51	do.	A	8/10/55	--	1.0	--	647	36	--	--	(262)	1,450	4.0	--	--	2,350	1,760	1,550	215	7.1	--	--	--

e/ Aluminum, 0.0 ppm; copper, 0.00 ppm; lithium, 1.1 ppm; phosphate, 0.0 ppm; zinc, 0.0 ppm.
f/ Sample collected at time of construction and testing of well.
g/ Carbonate, 4 ppm.

Table 5.--Chemical analyses of water from selected ground-water and surface-water sources (Continued)

Well or spring number	Location coordinates	Depth of well	Water-bearing unit	Source of analysis	Date of collection	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness (as $CaCO_3$)		Alkalinity (as $CaCO_3$)	pH	Specific conductance (micromhos at 25°C)	Color	Turbidity
																			Total	Noncarbonate					
Ot 1125	9J, 0.9N, 3.1E	97	Pleistocene sand and gravel	A	11/28/55	--	0.10	--	78	18	--	--	(190)	37	3.6	--	--	284	270	114	156	8.1	--	0	Trace
Ot 1127 f/	9J, 0.1S, 4.3E	56	do.	A	8/17/53	--	15	--	--	--	--	--	(274)	--	1.4	--	--	--	280	55	225	7.9	--	0	490
Ot 1129 f/	9K, 1.9S, 3.5E	100	Camillus shale	A	8/ 6/53	--	1.8	--	--	--	--	--	(240)	--	245	0.2	--	--	3,600	3,400	197	7.1	--	0	30
Ot 1129 h/	9K, 1.9S, 3.5E	27	Pleistocene sand and gravel	A	8/12/53	--	.45	--	--	--	--	--	(246)	--	360	--	--	--	1,480	1,280	202	6.9	--	0	Trace
Ot 1129 i/	9K, 1.9S, 3.5E	27	do.	A	8/13/53	--	.70	--	--	--	--	--	(248)	--	109	--	--	--	1,680	1,480	203	7.0	--	0	5
Ot 1130	9K, 1.9S, 3.9E	51	Camillus shale	A	8/26/53	--	.60	--	--	--	--	--	(276)	--	5.4	--	--	--	620	394	226	7.0	--	0	20
Ot 1130	9K, 1.9S, 3.9E	51	do.	A	8/ 9/55	--	.30	--	256	.2	--	--	(442)	194	45	--	--	858	640	278	362	7.1	--	--	--
Ot 1130 j/	9K, 1.9S, 3.9E	51	do.	A	10/27/55	--	.20	--	--	--	--	--	(364)	--	47	--	--	--	290	0	298	7.6	--	--	--
Ot 1130 k/	9K, 1.9S, 3.9E	51	do.	A	10/27/55	--	.20	--	--	--	--	--	(345)	--	45	--	--	--	760	477	283	7.4	--	0	Trace
Ot 10Sp	9K, 6.7S, 5.6E	--	Pleistocene deposits	A	11/ 9/51	--	.03	0.01	--	--	--	--	(289)	--	6.8	<.05	--	--	240	3	237	8.0	--	0	Trace
Ot 10Sp	9K, 6.7S, 5.6E	--	do.	A	9/12/52	--	.10	--	--	--	--	--	(305)	--	3.6	<.05	--	--	280	30	250	7.7	--	0	Trace
Ot 10Sp	9K, 6.7S, 5.6E	--	do.	A	6/24/55	--	.08	.01	--	--	--	--	(307)	--	13	<.05	--	--	330	78	252	7.5	--	0	Trace
Ot 10Sp	9K, 6.7S, 5.6E	--	do.	A	3/20/57	--	.10	--	--	--	--	--	(266)	--	22	--	--	--	420	202	218	7.7	--	0	Trace
Ot 29Sp	10J, 11.2S, 4.1E	--	Pleistocene sand and gravel	A	9/ 7/49	--	.40	.05	--	--	--	--	(348)	44	2.6	--	--	356	330	45	285	7.9	--	3	10
Ot 29Sp l/	10J, 11.2S, 4.1E	--	do.	B	3/21/54	8.5	.24	.02	84	21	4.0	0.3	310	50	2.4	.1	0.8	335	296	42	--	7.9	535	5	--
Ot 35Sp	9J, 1.9N, 5.9E	--	do.	A	6/31/49	--	.05	.01	--	--	--	--	(287)	78	3.0	--	--	407	270	35	235	7.4	--	0	Trace
Ot 38Sp	9J, 12.5S, 10.9E	--	Pleistocene till	A	8/31/49	--	.10	.04	--	--	--	--	(429)	64	42	--	--	524	360	8	352	7.1	--	0	Trace
Ot 39Sp	9J, 0.9S, 2.2E	--	Pleistocene sand and gravel	A	4/19/49	--	.20	--	--	--	--	--	(267)	--	5.4	.05	--	--	310	91	219	7.8	--	0	Trace
Ot 39Sp	9J, 0.9S, 2.2E	--	do.	A	12/ 1/52	--	.10	--	--	--	--	--	(264)	--	2.2	<.05	--	--	220	4	216	7.3	--	0	Trace
Ot 39Sp	9J, 0.9S, 2.2E	--	do.	A	3/10/54	--	.10	--	--	--	--	--	(255)	--	1.4	.05	--	--	290	81	209	7.5	--	0	Trace
Ot 39Sp	9J, 0.9S, 2.2E	--	do.	A	6/29/55	--	.03	--	--	--	--	--	(280)	--	2.4	.1	--	--	280	50	230	7.1	--	0	Trace
Ot 39Sp m/	9J, 0.9S, 2.2E	--	do.	B	5/ 3/56	12	.19	.01	56	26	3	1.0	270	29	3.0	.0	6.3	278	246	25	--	8.0	462	5	--
Ot 39Sp	9J, 0.9S, 2.2E	--	do.	A	3/13/57	--	.05	--	--	--	--	--	(245)	--	2.6	--	--	--	310	109	201	7.5	--	0	Trace
Ot 40Sp	9K, 5.1S, 9.3E	--	Pleistocene deposits	A	12/ 6/55	--	.20	--	--	--	--	--	(256)	--	4.8	.1	--	--	230	20	210	7.9	--	5	Trace
Ot 40Sp	9K, 5.1S, 9.3E	--	do.	A	2/ 9/56	--	--	--	--	--	--	--	--	--	--	--	--	--	260	--	--	--	--	--	--

f/ Sample collected at time of construction and testing of well.
h/ Sample collected before well was surged.
i/ Sample collected after well had been surged and test pumped.
j/ Analyzed after water had been softened. Copper, 0.04 ppm.
k/ Copper, 0.04 ppm.
l/ Aluminum, 0.1 ppm; copper, 0.00 ppm; lithium, 0.5 ppm; phosphate, 0.1 ppm; zinc, 0.29 ppm.
m/ Aluminum, 0.0 ppm; copper, 0.02 ppm; lithium, 0.3 ppm; phosphate, 0.0 ppm; zinc, 0.00 ppm.

Table 5.--Chemical analyses of water from selected ground-water and surface-water sources (Continued)

Well or spring number	Location coordinates	Depth of well	Water-bearing unit	Source of analysis	Date of collection	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness (as $CaCO_3$)		Alkalinity (as $CaCO_3$)	pH	Specific conductance (micromhos at 25°C)	Color	Turbidity
																			Total	Noncarbonate					
Ot 46Sp	9J, 7.1S, 3.9E	--	Pleistocene deposits	A	4/26/49	--	0.10	--	--	--	--	--	(340)	--	4.8	<0.05	--	--	270	0	279	7.3	--	0	Trace
Ot 46Sp	9J, 7.1S, 3.9E	--	do.	A	9/15/53	--	.14	--	--	--	--	--	(330)	--	6.6	< .05	--	--	360	89	271	7.5	--	0	Trace
Ot 46Sp	9J, 7.1S, 3.9E	--	do.	A	6/28/54	--	.03	--	--	--	--	--	(303)	--	9.0	.05	--	--	390	142	248	7.3	--	0	Trace
Ot 46Sp	9J, 7.1S, 3.9E	--	do.	A	6/27/55	--	.08	--	--	--	--	--	(344)	--	11	< .05	--	--	320	38	282	7.7	--	0	Trace
Ot 47Sp	9J, 7.4S, 3.4E	--	do.	A	11/20/51	--	.03	--	--	--	--	--	(343)	--	6.2	< .05	--	--	280	0	281	7.3	--	0	Trace
Ot 47Sp	9J, 7.4S, 3.4E	--	do.	A	7/ 8/55	--	.05	--	--	--	--	--	(360)	--	8.6	< .05	--	--	400	105	295	7.4	--	0	Trace
SURFACE WATER SOURCES																									
A	Canandaigua Lake (at Canandaigua)			A	9/22/54	--	.20	<0.01	--	--	--	--	(113)	--	4.8	--	--	--	124	31	93	8.3	--	0	Trace
B	Canandaigua Outlet (at Chapin)			B	8/14/56	2.5	.18	.01	36	8.6	7.0	2.5	121	28	8.4	.0	8.4	164	125	26	--	7.0	290	4	--
C	Flint Creek (at Gorham)			A	5/29/50	--	.60	< .01	--	--	--	--	(172)	--	4.0	0.2	--	--	172	31	141	7.9	--	35	10
D	Flint Creek (at Phelps) [n/]			A	5/29/50	--	.15	< .01	--	--	--	--	(180)	--	5.2	0.2	--	--	220	72	148	8.5	--	40	Trace
E	Grimes Creek (at Naples)			A	10/24/50	--	.10	< .01	--	--	--	--	(162)	--	6.2	--	--	--	160	27	133	7.8	--	0	Trace
F	Hemlock Lake			B	6/20/51	3.5	.30	.00	22	5.8	3.0	2.4	59	26	5	.0	1.0	101	79	30	--	7.4	170	5	--
G	Honeoye Creek (at Honeoye Falls)			B	4/ 8/54	3.4	.67	.00	39	10	3.0	2.1	132	30	4.8	.2	1.3	178	139	30	--	7.5	279	17	--
H	Seneca Lake (at Sampson Air Force Base) [o/]			B	1/ /56	1.2	.06	(.00)	31	10	80		115	36	114	.0	.8	334	118	24	--	7.5	630	2	--

n/ Stream contains industrial waste.

o/ Aluminum, 0.0 ppm; copper, 0.00 ppm; lithium, 0.2 ppm; phosphate, 0.1 ppm; zinc, 0.00 ppm.

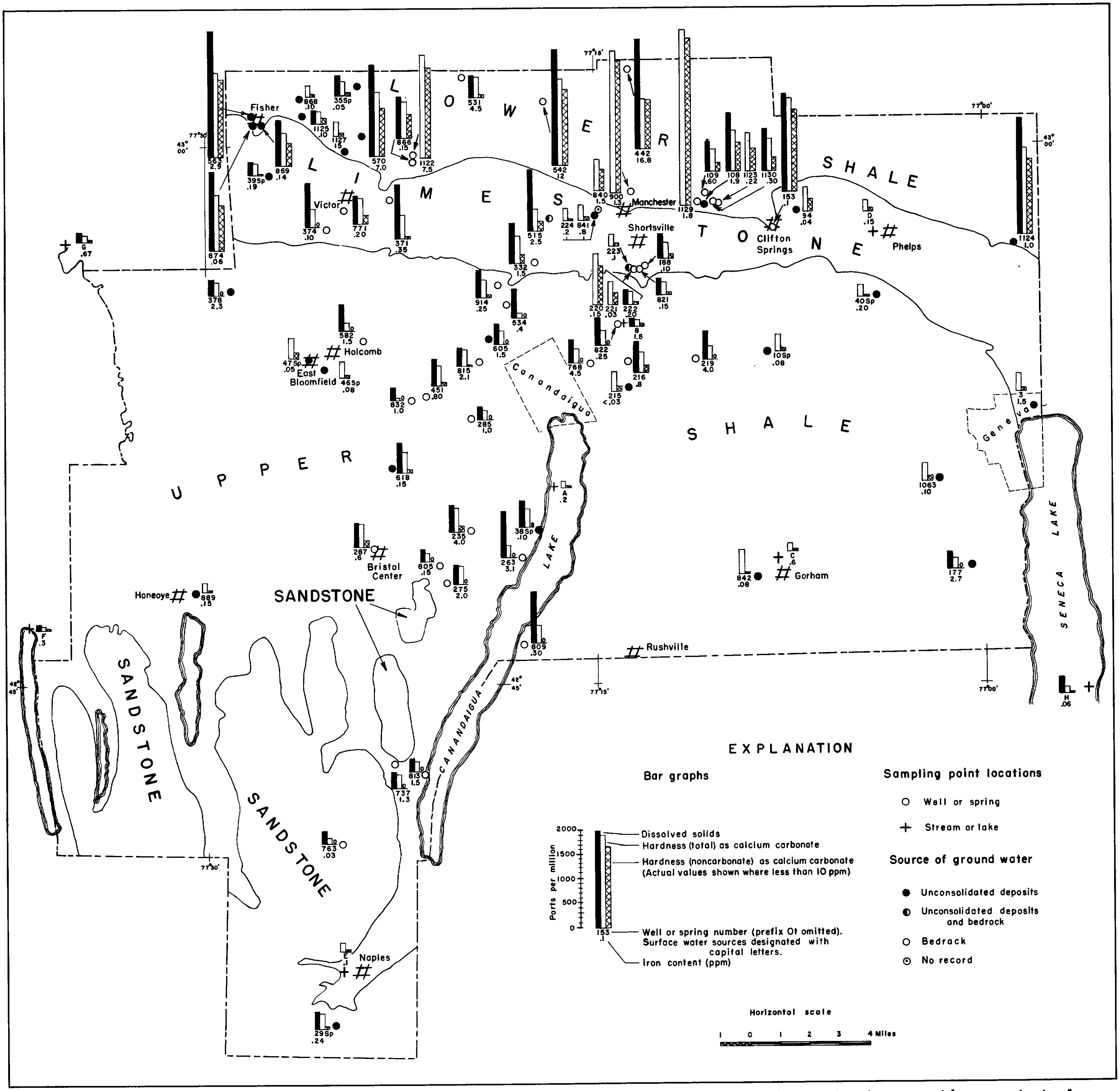

Figure 6.--Map of Ontario County showing dissolved solids content, total hardness, noncarbonate hardness, and iron content of ground water and surface water; distribution of sampling points; and outcrop areas of bedrock aquifers.

of underlying bedrock, of each source and some chemical characteristics of water from each source. Sixteen of the analyses show the concentrations of all the constituents and characteristics commonly determined in water analyses. The remaining 93 analyses are less complete, showing only a few of the significant constituents and characteristics. Analyses of surface-water samples are included to permit comparison between chemical quality of ground waters and surface waters. It will be noted from such a comparison that surface water generally has a lower mineral content than ground water.

In all tables and maps, results are expressed in parts per million unless otherwise indicated. A part per million (ppm) is a unit weight of a constituent in a million unit weights of solution. For example, a water sample having an iron content of 1 ppm has an iron content equivalent to 1 pound of iron dissolved in a million pounds of solution.

Chemical Quality

Related to use

More than 50 constituents and characteristics of water may be determined in a water analysis. However, it is customary to make determinations for only those constituents and characteristics considered to be essential to the particular problem at hand. Determinations are commonly made for the following constituents of natural waters: silica, iron, manganese, calcium, magnesium, sodium, potassium, carbonate, bicarbonate, sulfate, chloride, fluoride, and nitrate. The sources of these constituents and the significance of each constituent to the user of the water are listed in table 6. Other characteristics of water that are often reported in chemical analyses (but not included in table 6) are dissolved solids, hardness, alkalinity, pH, specific conductance, color, and turbidity.

Dissolved solids.--In general, the value determined for the dissolved solids in a sample indicates the approximate quantity of substances in solution, although the values reported may include some organic matter and water of crystallization and exclude gases such as carbon dioxide which escape during heating. The United States Public Health Service (1946) recommends that the dissolved solids of water supplies used on interstate carriers not exceed 500 ppm, although a supply containing as much as 1,000 ppm is acceptable where a better supply is not available. The average concentration of dissolved solids in samples from 50 wells and springs in Ontario County is 780 ppm and the range is from 232 ppm to 2,560 ppm. In general, the content of dissolved solids in ground water from sources north of the area of outcrop of the upper shale aquifer (fig. 6) is considerably more than 500 ppm, whereas the average content of dissolved solids in ground water from the remainder of the county is less than 500 ppm.

Hardness.--Hardness is that property of water attributed to the presence of alkaline earth elements. This group of elements includes calcium, magnesium, strontium, and barium. Of the group, only calcium and magnesium commonly occur in natural waters in more than trace quantities. Hardness of water is indicated by the soap consuming tendency of water. Soap will not lather until the hardness producing elements (alkaline earths) either have been neutralized or precipitated as insoluble salts of the fatty acids.

Table 6.--Constituents commonly found in ground water

Constituent	Source	Significance	U. S. Public Health Limits (ppm) 1/
Silica (SiO_2)	The silicate minerals present in nearly all formations.	Deposited from heated water as hard scale in pipes and boilers.	-----
Iron (Fe)	The common iron-bearing minerals, such as pyrite, marcasite, and hematite, present in most formations.	More than 0.3 ppm is objectionable because it oxidizes to form a reddish-brown precipitate when exposed to air. This precipitate stains laundry and utensils. It also imparts a disagreeable taste to the water and favors the growth of iron bacteria.	0.3 (Iron and manganese together)
Manganese (Mn)	Manganese-bearing minerals in metamorphic and sedimentary rocks. Not as abundant as the iron-bearing minerals.	Causes brown to black stain.	
Calcium (Ca)	Anorthite, pyroxenes, amphiboles, sandstone, limestone, dolomite, and gypsum.	Cause most of the hardness and scale-forming properties of water.	-----
Magnesium (Mg)	Limestone and dolomite.		125
Sodium (Na) and potassium (K)	Connate water, salt deposits, feldspar, industrial brines and sewage.	Presence of large amounts of sodium ion in irrigation waters degrades the soil.	-----
Bicarbonate (HCO_3) and carbonate (CO_3)	Results from reaction between carbon dioxide in water and carbonate minerals such as calcite (limestone) and dolomite.	In combination with calcium and magnesium forms carbonate hardness; decomposes on application of heat with attendant formation of scale and release of corrosive carbon dioxide gas.	-----
Sulfate (SO_4)	Gypsum, sodium sulfate, and other minerals; common in some industrial wastes from oxidation of sulfides.	Sulfates of calcium and magnesium form hard scale.	250
Chloride (Cl)	Occurs, at least in small amounts, in nearly all soils and rocks; connate water, salt deposits, and sewage; in human and animal excreta.	Major anion of most brines in the United States. Abnormal amounts in water supplies may indicate pollution by human or animal wastes.	250
Fluoride (F)	In minute amounts in various minerals of widespread occurrence. Calcium fluoride (fluorite).	About 1.0 ppm believed to be helpful in reducing incidence of tooth decay in children. Believed to cause mottled enamel of teeth at higher concentrations. Often identifies water from deep strata.	1.5
Nitrate (NO_3)	Decayed organic matter, sewage, fertilizers, nitrates in soil.	Forty-five ppm or more reported to produce methemoglobinemia in infants 2/. May indicate pollution.	-----

1/ United States Public Health Service, 1946, Drinking water standards: Public Health Repts., v. 61, p. 371-384.

2/ Maxey, K. F., 1950, Report on the relation of nitrate concentrations in well waters to the occurrence of methemoglobinemia: Natl. Research Council, Bull. Sanitary Eng., p. 265, App. D.

Carbonate hardness, also referred to as bicarbonate and temporary hardness, represents the hardness attributed to the bicarbonates of the alkaline earth elements. Heating converts bicarbonate to carbonates and results in the precipitation of calcium and magnesium carbonates in boilers and other heat-exchange equipment.

Noncarbonate hardness, also referred to as sulfate hardness and permanent hardness, represents the hardness attributed to the sulfates, chlorides, and/or nitrates of the alkaline earth elements. Figure 7 shows the total hardness as well as the carbonate and noncarbonate hardness of water from each of the water-bearing units in the county.

In this report, waters ranging in hardness from 0 to 50 ppm are considered soft, those between 51 and 100 ppm are medium hard, those between 101 and 200 ppm are hard, and those above 200 ppm are considered very hard. Of the 72 wells and springs from which water samples were collected, only 1 source (well Ot 832) yields water which is soft, no source yields water which is medium hard, 7 sources yield water which is hard, and 64 sources yield water which is very hard.

As may be seen in figure 7 and table 7, the carbonate hardness of water is much the same in all water-bearing units of the county, averaging about 250 ppm and ranging from 14 to 461 ppm for all ground water samples from the county. However, as may be seen in figure 7 and table 7, the noncarbonate hardness of most of the water from the Camillus and from much of the unconsolidated deposits overlying the Camillus is higher than it is from the other units. For example, the noncarbonate hardness of 12 samples from the Camillus averaged 1,340 ppm and ranged from 67 to 2,700 ppm, whereas the noncarbonate hardness of samples from the other water-bearing units in the county averaged about 60 ppm and ranged from 0 to 247 ppm.

Hydrogen-ion concentration (pH).--The corrosive characteristics of a water are related to the hydrogen-ion concentration, which is usually expressed in terms of pH. Water is generally progressively more active toward metal as the pH decreases below 7, the neutral point. However, at high pH values, the activity toward some metals may also accelerate. The pH values lower than 7 indicate acidic characteristics and those higher than 7 indicate alkaline characteristics. Of the 72 wells and springs from which water samples were collected, only 4 sources yield water with pH values lower than 7.0 and the remaining 68 sources yield water with pH values ranging from 7.0 to 8.3.

Hydrogen sulfide.--Hydrogen sulfide gas causes water in which it is dissolved to have a disagreeable taste, the objectionable odor of "rotten eggs", and commonly causes water to be corrosive. Although no analyses giving hydrogen sulfide content in ground water from Ontario County are available, the odor has been noted in many wells and springs. (See remarks column of tables 10 and 11.) Hydrogen sulfide gas usually can be removed from water by aeration.

Flammable gas.--Flammable gas (probably methane) is yielded with the water from several wells drilled in the county. It constitutes a fire and explosion hazard if allowed to accumulate in confined spaces.

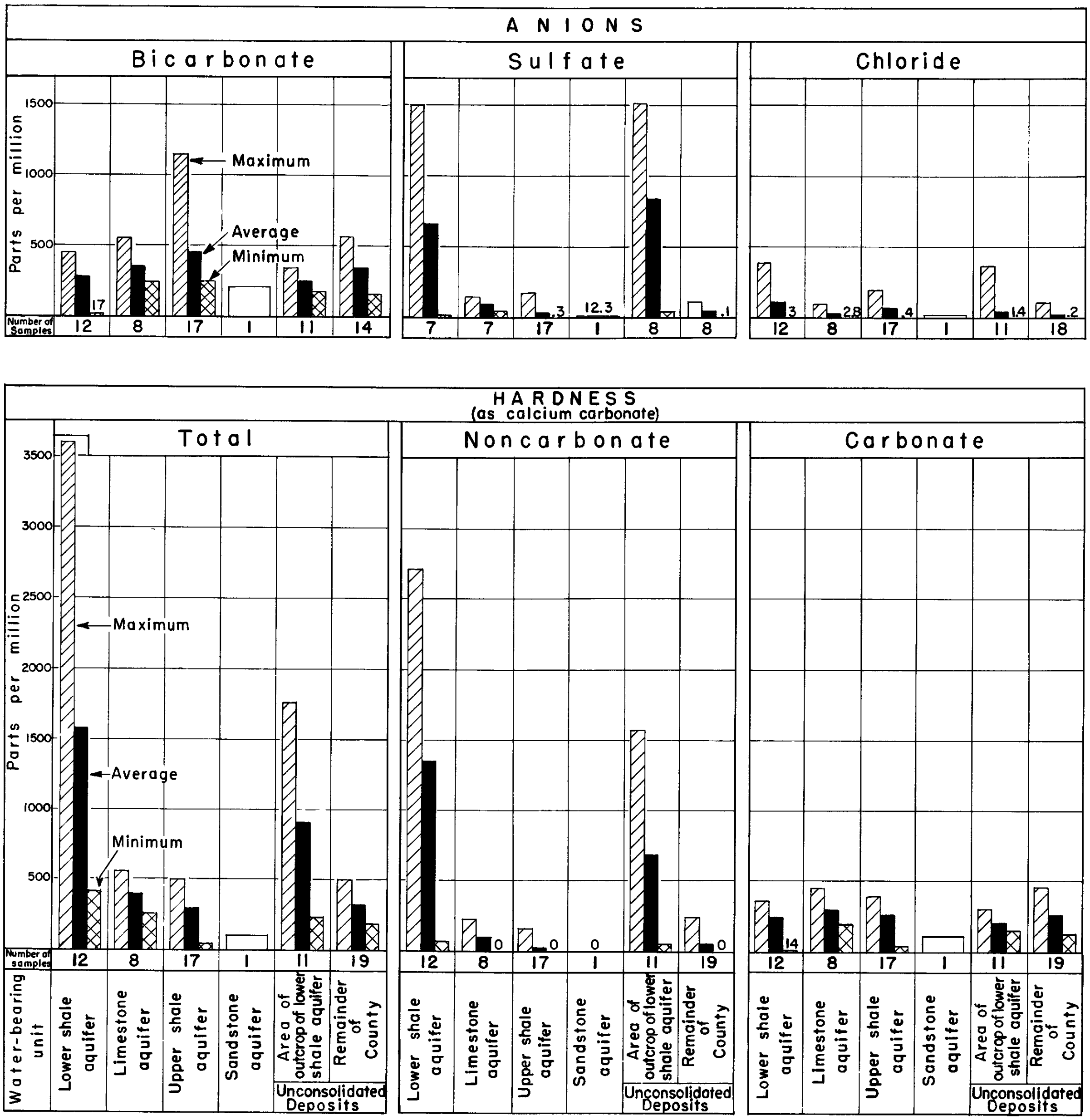

Figure 7.--Graphs showing the bicarbonate, sulfate, and chloride content and the hardness of water from the water-bearing units of Ontario County.

Table 7.--Summary of chemical analyses of water from ground-water and surface-water sources in Ontario County

(In parts per million)

	Source of water	Iron: Average and range	Iron: Number of analyses	Bicarbonate: Average and range	Bicarbonate: Number of analyses	Sulfate: Average and range	Sulfate: Number of analyses	Chloride: Average and range	Chloride: Number of analyses	Dissolved solids: Average and range	Dissolved solids: Number of analyses	Hardness as $CaCO_3$ Total: Average and range	Hardness as $CaCO_3$ Total: Number of analyses	Hardness as $CaCO_3$ Noncarbonate: Average and range	Hardness as $CaCO_3$ Noncarbonate: Number of analyses	Hardness as $CaCO_3$ Carbonate: Average and range	Hardness as $CaCO_3$ Carbonate: Number of analyses
Unconsolidated deposits	Underlain by consolidated rocks younger than the lower shale aquifer	0.51 <.03-2.7	19	348 160-562	14	41 0.1-107	8	21 0.2-100	18	402 278-620	7	324 188-490	19	56 0-247	19	267 131-461	19
	Underlain by the lower shale aquifer	2.7 .05-15	11	256 180-360	11	750 37-1,510	8	41 1.4-360	11	1,390 284-2,560	8	907 230-1,760	11	697 55-1,570	11	211 150-300	11
	All sources	1.31 <.03-15	30	307 160-562	25	395 .1-1,510	16	28 .2-360	29	931 278-2,560	15	538 188-1,760	30	291 0-1,570	30	246 131-461	30
Consolidated rocks	Sandstone aquifer	.03 --	1	204 --	1	12 --	1	18 --	1	232 --	1	104 --	1	0 --	1	104 --	1
	Upper shale aquifer	1.64 .15-4.5	17	458 238-1,150	17	29 .3-167	17	32 .4-185	17	497 246-1,050	17	290 44-500	17	27 0-157	17	263 44-392	17
	Limestone aquifer	.31 .03-1.5	8	369 240-552	8	81 34-141	7	30 2.8-86	8	648 285-1,100	7	400 260-560	8	103 0-227	8	299 197-452	8
	Lower shale aquifer	3.8 .10-16.8	12	292 17-442	12	664 27-1,490	7	101 3.0-380	12	1,340 443-2,360	7	1,580 420-3,600	12	1,340 67-2,700	12	239 14-362	12
	All sources a/	1.82 .03-16.8	41	384 17-1,150	41	172 .3-1,490	34	48 .4-380	41	700 232-2,360	34	700 44-3,600	41	444 0-2,700	41	256 14-452	41
	All ground-water sources a/	1.60 <.03-17	73	353 17-1,150	68	248 .1-1,510	51	39 .2-380	72	780 232-2,560	50	624 44-3,600	73	372 0-2,700	73	251 14-461	73
	All surface-water sampling sites	.29 .06-.67	8	124 59-172	8	30 26-36	4	19 4-114	8	194 101-334	4	142 79-220	8	34 24-72	8	108 49-148	8

a/ Includes samples from wells tapping more than one water-bearing unit.

Related to geology

The chemical composition of ground water in Ontario County depends mainly on the chemical composition of the earth materials through which the water percolates and on the length of time the water is in contact with the material. The relatively large difference between the chemical composition of water from the northern part of the county, the area of outcrop of the lower shale aquifer, and water from the remainder of the county, is due primarily to differences in the composition of the water-bearing units. Water from the lower shale aquifer (which consists of the Camillus shale of the Salina group) usually contains relatively large amounts of calcium sulfate (fig. 8) because this unit contains large amounts of gypsum and anhydrite. Waters from the limestone, upper shale, and sandstone aquifers contain calcium bicarbonate and magnesium bicarbonate as their principal constituents (fig. 8) because the principal soluble minerals contained by these units or the unconsolidated deposits overlying them are of the carbonate type. It may be observed from figure 6 that 6 of the 21 analyses of water from the lower shale aquifer contain more carbonate hardness than noncarbonate hardness. These analyses doubtless reflect the fact that the water had percolated only through unconsolidated deposits or the upper part of the aquifer, from which the gypsum has been largely removed.

The mineralization of ground water tends to increase with depth in most areas. This is true because water at depth has had more time in contact with soluble minerals in earth materials during its movement downward than shallower water which generally has had relatively little time in contact with soluble earth material.

Related to construction and pumping of wells

As the mineralization of ground water tends to increase with depth in most areas, particularly in the area of outcrop of the lower shale aquifer, it is desirable that wells be (1) drilled no deeper than absolutely necessary to obtain the required quantity of water, (2) pumped at as low a rate as possible, and (3) pumped only when necessary. The mineralization of the water in several wells owned by the New York State Thruway Authority in the area of outcrop of the lower shale aquifer has increased since the wells have been in operation. Such increases doubtless result from an upward movement of mineralized water from the lower zones of the unit in response to the drawdowns produced by the pumping. It is probable that the mineralization of the water would decrease, at least in some cases, if pumping rates were reduced.

Temperature

The temperature of ground water is generally within a few degrees of the mean annual air temperature which is about 48°F at Geneva. The ground-water temperature fluctuates more widely near the land surface than at depth. Temperature measurements for water in 85 wells in the county are included in the remarks column of table 10. The average of these measurements is 50.3°F, the warmest water measured was 56°F, and the coolest was 46°F. As a result of its relatively low summer temperature, ground water is widely used for cooling purposes.

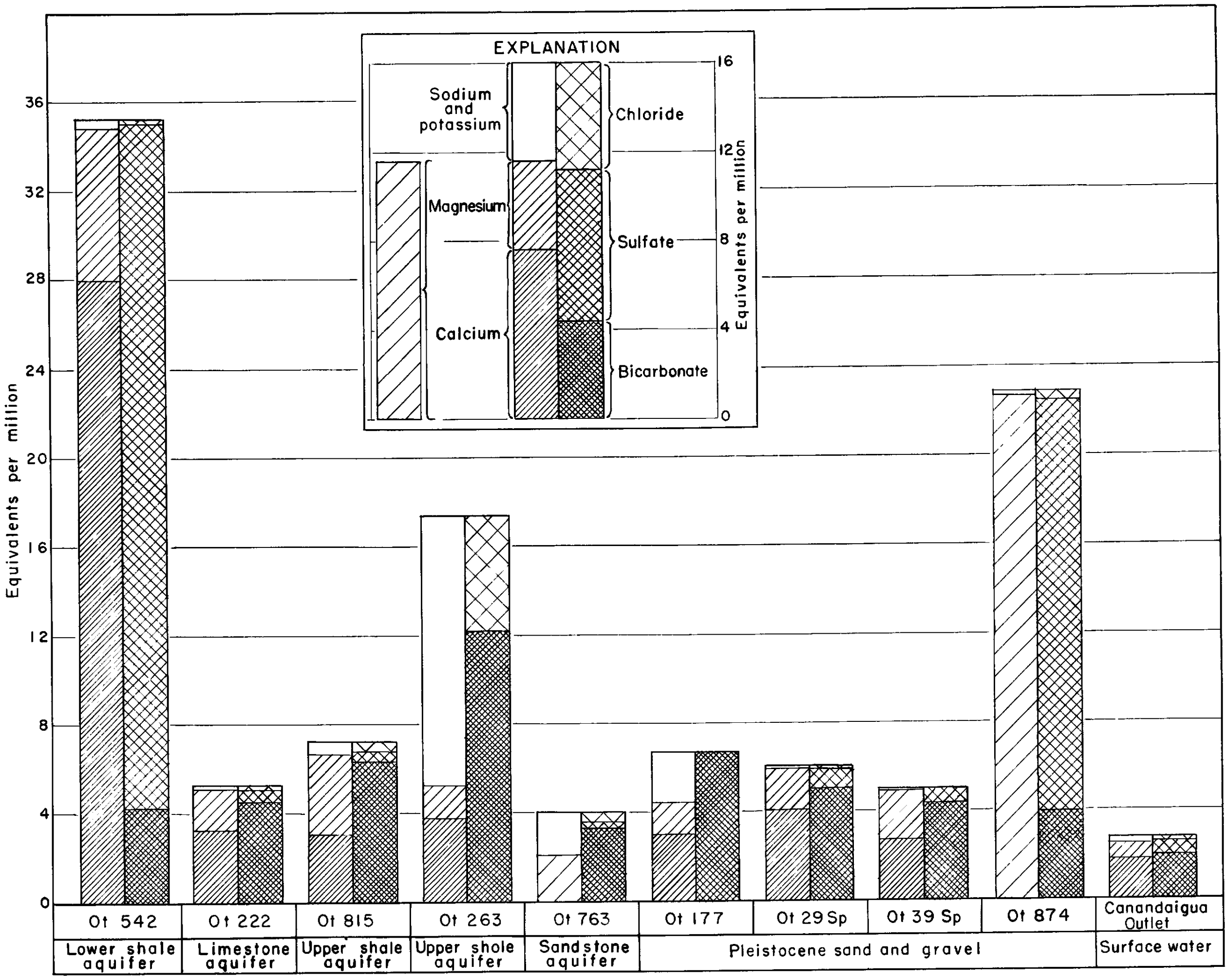

Figure 8.--Graphs showing the chemical character of nine ground-water samples and one surface-water sample.

Utilization of Ground Water

Construction of Wells

Several types of wells are used to obtain ground-water supplies in Ontario County. The type of well used is dependent upon such factors as depth to the aquifer, character of the aquifer and overlying material, desired yield, and cost of construction. The principal types of wells are classified as dug, driven, or drilled. The drilled well is the type best suited for the development of aquifers consisting of consolidated rock and it is usually the best for development of supplies from deeply buried unconsolidated materials.

Most ground-water supplies in Ontario County are obtained from either dug or drilled wells. Dug wells are used for many water supplies in rural areas because they are cheap and do not require skilled labor and expensive equipment for construction. The large diameter of such wells (average is about 3 feet) is advantageous in glacial till because of the large infiltration area and the large volume of water that is available for immediate use. It is difficult to extend dug wells more than a few feet below the water table. As a consequence, many dug wells go dry during prolonged

droughts because the water table declines below the bottom of the well. Because the yield of many dug wells is inadequate to supply the present large domestic requirements of many homes and farms, dug wells are gradually being replaced with drilled wells. Most drilled wells in Ontario County are constructed by the cable-tool method, also known as the percussion or churn-drill method. This method involves the excavation of a hole by the percussion and cutting action of a chisel-edged drilling bit which is alternately raised and dropped. The formation through which the hole is drilled is broken into small fragments that become churned and mixed into a sludge. At intervals the sludge is removed from the hole with either a bailer or a sand pump. Drilled wells are generally cased through the section of unconsolidated deposits penetrated by the well and are uncased in bedrock. Many drilled wells taking water from sand and gravel deposits in Ontario County have been completed by merely drilling and casing to a layer whose permeability is great enough to supply the required amount of water through the open end of the casing. This type of construction is feasible only where geologic and hydrologic conditions are favorable and where only a small percentage of the maximum potential yield of the aquifer is required. In order to withdraw the maximum amount of water from a sand or gravel deposit, it is necessary to set a screen of the proper length, diameter, and slot size for the deposit. A properly selected screen prevents the movement of earth materials into the well but provides openings through which water enters the well. As yet, screens have been used in only a few wells in Ontario County.

Springs

Springs, places where ground water discharges naturally at the land surface, are relatively abundant in the county. Data on the yield and other features of 49 springs in Ontario County are presented in table 11. Some springs occur where water flows to the surface from permeable material simply because the land surface extends down to the water table, some occur on slopes where water flows to the surface from permeable material overlying less permeable material that retards the downward percolation of the ground water and thus deflects it to the surface, and some flow from joints or other fractures in rock.

The yields of the springs in the county range from less than 1 gpm from small seeps to over 200 gpm from spring Ot 39Sp. The villages of Victor, Phelps, Clifton Springs, Naples, Holcomb, and East Bloomfield and many farms and individual residences in Ontario County use springs as the sources for their water supplies. A sanitarium in the village of Clifton Springs, with accommodations for 400 guests, has utilized the water from the sulfur springs located there for more than 60 years.

Water Supplies

Industry, private home owners, and farmers are the largest consumers of ground water in the county. Data from the "Use" column of table 10 indicates that approximately 90 percent of the wells in the county are used to supply the needs on farms and of non-farm rural residents. The total amount of ground water used in Ontario County during 1957 is estimated to have varied from approximately 3,000,000 gpd (gallons per day) during the winter months when the demands by industry were lowest to about 5,000,000 gpd during the summer months when the demand for water by sand and gravel producers and food processors was greatest.

Public supplies

The public water supply systems of nine of the larger villages of the county use ground water. Table 8 presents the data available for each of these systems. Together they supply a total of between 1,000,000 gpd and 1,250,000 gpd to a total of approximately 10,000 people and a few small industries. The two largest communities of the county, Geneva and Canandaigua, obtain their water from Seneca Lake and Canandaigua Lake respectively.

Industrial supplies

As most of the industries in Ontario County are located in the cities of Geneva and Canandaigua, the bulk of the water used by industries is surface water purchased from the city water systems. However, several food processing plants and two large sand and gravel companies in rural areas use ground water obtained either from private systems or small public supplies. It is estimated that as much as 1,800,000 gpd are used for the washing of sand and gravel and that about 700,000 gpd are used in the food processing plants. However, these industries are seasonal and although they may use as much as 2,500,000 gpd of ground water during the summer months, they use relatively little in the winter season.

Farm and domestic supplies

Approximately 30,000 people in Ontario County rely on water from privately owned wells and springs to supply their domestic needs. It is estimated that between 1,000,000 gpd and 1,500,000 gpd are used to satisfy this demand. In addition it is estimated that farm livestock consume an additional 500,000 gpd of ground water.

SUMMARY AND CONCLUSIONS

Both the consolidated bedrock and the unconsolidated deposits which overlie the bedrock are sources of ground water in Ontario County. The quantity and quality of water available from any of these sources depends in large part on the thickness, lateral extent, permeability, topographic setting, lithology, and location (with respect to the water table and to sources of recharge) of the aquifer.

Bedrock underlying the county has yielded as much as 300 gpm to individual wells but the average yield of 356 wells tapping it is 12 gpm. The bedrock has been divided, on the basis of hydrologic characteristics, into four water-bearing units. In the lower shale aquifer, the northernmost and therefore the oldest of the four units, the average yield of wells is about 20 gpm. The water from the unit is relatively highly mineralized. The average yield of wells in the limestone aquifer, the second oldest unit, is about 22 gpm and the water is of fairly good quality. The upper shale aquifer, the next oldest unit, yields relatively small amounts of water (an average of 6 gpm), and although the water is hard and locally high in iron, it is generally of usable quality. The sandstone aquifer, the youngest bedrock unit, also yields relatively small quantities of water (the average yield of wells is 6 gpm), but the quality of the water is probably better than that of water from the other bedrock aquifers.

Table 8.--Public water supplies in Ontario County utilizing ground water 1/

Name	Source 2/	Consumption (gallons per day)	Population served	Treatment	Supply available in emergencies (existing connections)
Village of Clifton Springs	Spring (Ot 10Sp)	200,000	1,800	Chlorination	---
Village of East Bloomfield	Spring (Ot 47Sp)	30,000	350	---	Village of Holcomb water supply
Village of Holcomb	Spring (Ot 46Sp)	50,000	400	---	Village of East Bloomfield water supply
Village of Honeoye	Well (Ot 889)	10,000 - 15,000	100	---	---
Village of Manchester	Well (Ot 224)	95,000 -175,000	1,300	---	Village of Shortsville water supply
Village of Naples 3/	Spring (Sb 91Sp) in Steuben County	170,000 -360,000	1,200	---	Grimes Creek
Village of Phelps	Spring (Ot 40Sp)	150,000	1,600	Chlorination	Newark Reservoir
Village of Shortsville	Wells (Ot 221, Ot 222, and Ot 223)	200,000	1,300	Chlorination	Village of Manchester water supply
Village of Victor 4/	Spring (Ot 39Sp)	40,000 5/	1,100	---	---

1/ Based on data taken from New York State Department of Health Bulletin 19, 1954, and field observations.

2/ See table 10 or table 11 for more complete data regarding individual springs and wells. Chemical analysis of water in each supply is listed in table 5.

3/ Water obtained from a spring in Steuben County, 3 miles south of Naples, just south of county line. During emergencies, supplemental water has been taken from Grimes Creek. A newly developed supply located on an upper reach of Eelpot Creek is now being used for supplemental supply.

4/ Restaurant on New York State Thruway near Victor obtains its water from this supply.

5/ Does not include the water furnished by village of Victor to the restaurant on the New York State Thruway.

Unconsolidated deposits, mostly Pleistocene in age and ranging in thickness from less than a foot to more than 300 feet, overlie the bedrock in nearly all parts of the county. They have been classified as (1) till, (2) fine-grained stratified deposits, and (3) coarse-grained stratified deposits. Till is the surficial deposit in most highland areas of the county and it probably underlies unconsolidated stratified deposits in many of the lowland areas. The fine-grained stratified deposits form the surficial layer in many parts of the northern lowland area of the county and in some of the valleys in the southern and central areas. In most areas the till and the fine-grained stratified deposits yield only a few hundred gallons of water per day to large-diameter wells. The coarse-grained stratified deposits are fairly extensive in the low-lying areas in the northern part of the county and occur in several other scattered areas. In 1959 they were the source of water used by more than 200 farms and rural homes in the area and were adequate for considerable additional development.

Thus, availability of ground water in Ontario County may be summarized as follows: (1) amounts adequate to supply farms and rural homes can be obtained in any part of the county, (2) amounts up to several hundred gallons per minute may be obtained from individual wells drawing from some parts of the lower shale aquifer, the limestone aquifer and the coarse-grained stratified deposits.

SELECTED REFERENCES

Alling, H. L., 1928, The geology and origin of the Silurian salt of New York State: New York State Mus. Bull. 275.

Birge, E. A., and Juday, C., 1914, A limnological study of the Finger Lakes of New York: U. S. Bur. of Fisheries Bull., v. 32, p. 527-609.

Bradley, W. H., and Pepper, J. F., 1938, Structure and gas possibilities of the Oriskany sandstone in Steuben, Yates, and parts of the adjacent counties, New York: U. S. Geol. Survey Bull. 899-A.

Carr, M. E., and others, 1912, Soil survey of Ontario County, New York: U. S. Dept. of Agriculture.

Chadwick, G. H., 1917, Lake deposits and evolution of the lower Irondequoit valley: Rochester Acad. Sci. Proc., v. 5, p. 123-160.

______ 1919, Phelps quadrangle, in Clarke, J. M., 1919, Fourteenth report of the director of the State Museum and Science Department: New York State Mus. Bull. 207-208, p. 42-43.

Clarke, J. M., 1885, Brief outline of the geological succession in Ontario County, New York: New York State Geologists 4th Ann. Rept. (for the year 1884), Assembly Doc. 161, p. 9-22.

Clarke, J. M., and Luther, D. D., 1904, Stratigraphic and paleontologic map of Canandaigua and Naples quadrangles: New York State Mus. Bull. 63.

Colton, G. W., and de Witt, W., Jr., 1958, Stratigraphy of the Sonyea formation of late Devonian age in western and west-central New York: U. S. Geol. Survey Oil and Gas Inv. Chart OC-54.

Cooper, G. A., 1930, Stratigraphy of the Hamilton group: Am. Jour. Sci., v. 19, no. 3, p. 116-134, 214-236.

Cooper, G. A., and Williams, J. S., 1935, Tully formation of New York: Geol. Soc. America Bull., v. 46, no. 5, p. 781-868.

de Witt, W., Jr., and Colton, G. W., 1959, Revised correlations of lower Upper Devonian rocks in western and central New York: Am. Assoc. Petroleum Geologists Bull., v. 43, no. 12, p. 2810-2828.

Fairchild, H. L., 1904, Direction of preglacial stream flow in central New York: Am. Geologist, v. 33, p. 43-45.

______ 1909, Glacial waters in central New York: New York State Mus. Bull. 127.

______ 1910, Drainage evolution in central New York: Geol. Soc. America Bull., v. 20, p. 668-670.

_____ 1926, The Dansville valley and drainage history of western New York: Rochester Acad. Sci. Proc., v. 6, no. 7, p. 217-242.

_____ 1935, Genesee valley hydrography and drainage: Rochester Acad. Sci. Proc., v. 7, no. 6, p. 157-189.

Fox, I. W., 1932, Geology of part of the Finger Lakes region, New York: Am. Assoc. Petroleum Geologists Bull., v. 16, p. 675-690.

Gillette, Tracy, 1940, Geology of the Clyde and Sodus Bay quadrangles, New York: New York State Mus. Bull. 320.

Grabau, A. W., 1908, Preglacial drainage in central-western New York: Science, v. 28, p. 527-534.

Griswold, R. E., 1951, The ground-water resources of Wayne County, New York: New York Water Power and Control Comm. Bull. GW-29.

Grossman, I. G., and Yarger, L. B., 1953, Water resources of the Rochester area, New York: U. S. Geol. Survey Circ. 246.

Grossman, W. L., 1944, Stratigraphy of the Genesee group of New York: Geol. Soc. America Bull., v. 55, no. 1, p. 41-75.

Hoffmeister, J. E., 1941, Results to date of exploration for ground water in the buried Genesee valley: Econ. Geology, v. 36, p. 112-113.

Hopkins, C. G., and Lozier, W. S., 1935, Report on obtaining a supplementary source of water supply for the city of Rochester: 32 p. (mimeo.), Rochester, New York.

Kreidler, W. L., 1957, Occurrence of Silurian salt in New York State: New York State Mus. Bull. 361.

Leggette, R. M., Gould, L. O., and Dollen, B. H., 1935, Ground-water resources of Monroe County, New York: Monroe County Regional Plan. Board.

Luther, D. D., 1898, The stratigraphic position of the Portage sandstones in the Naples valley and the adjoining region: New York State Mus. Ann. Rept. 49 (for the year 1895), v. 2, p. 223-236.

_____ 1909, Geology of the Geneva-Ovid quadrangles: New York State Mus. Bull. 128.

_____ 1911, Geology of the Honeoye-Wayland quadrangles: New York State Mus. Bull. 152.

SELECTED REFERENCES (Continued)

Meinzer, O. E., 1923, Outline of ground-water hydrology: U. S. Geol. Survey Water-Supply Paper 494.

Miller, W. J., 1924, The geological history of New York State: New York State Mus. Bull. 255.

Mozola, A. J., 1951, The ground-water resources of Seneca County, New York: New York Water Power and Control Comm. Bull. GW-26.

Newland, D. H., and Leighton, Henry, 1910, Gypsum deposits of New York: New York State Mus. Bull. 143, p. 60.

______ 1920, History of the gypsum industry in New York: U. S. Geol. Survey Bull. 697, p. 187-217.

New York State Dept. of Commerce, 1951, The clays and shales of New York State, p. 348.

______ 1957, Business fact book for the Rochester area: p. 9.

Oliver, W. A., 1954, Stratigraphy of the Onondaga limestone in central New York: Geol. Soc. America Bull., v. 65, no. 7, p. 621-652.

Pearson, C. S., and Cline, M. G., 1958, Soil survey of Ontario and Yates Counties, New York: U. S. Dept. of Agriculture, Ser. 1949, no. 5.

Pepper, J. F., and de Witt, W., Jr., 1950, Stratigraphy of the Upper Devonian Wiscoy sandstone and the equivalent Hanover shale in western and central New York: U. S. Geol. Survey Oil and Gas Inv. (Prelim.) Chart 37.

Pepper, J. F., de Witt, W., Jr., and Colton, G. W., 1956, Stratigraphy of the Late Devonian West Falls formation in western and west-central New York: U. S. Geol. Survey Oil and Gas Inv. Chart OC-55.

Richardson, G. B., 1941, Geologic structure and occurrence of gas in part of southwestern New York: U. S. Geol. Survey Bull. 899-B.

Ries, Heinrich, 1900, Clays of New York: New York State Mus. Bull. 35.

______ 1901, Lime and cement industries of New York State: New York State Mus. Bull. 44, p. 819.

Trainer, D. W., Jr., 1932, The Tully limestone of central New York: New York State Mus. Bull. 291.

U. S. Public Health Service, 1946, Drinking water standards: Public Health Repts., v. 61, p. 371-384.

SELECTED REFERENCES (Continued)

Wedel, A. D., 1932, Geologic structures of the Devonian strata of south-central New York: New York State Mus. Bull. 294.

Williams, S. G., 1883, Dip of the rocks of central New York: Am. Jour. Sci., v. 26, p. 303-305.

Table 9.--Drillers' logs of selected wells and test holes in Ontario County

(Location coordinates are explained in section, "Well-Location System". Information in parenthesis was added by the author. Formation names were determined from geologic maps. Other data for each well or test hole are found in table 10.)

Part 1.--Logs of wells

	Thickness (feet)	Depth (feet)
Ot 3: 9L, 8.5S, 1.5E; drilled by N. Comstock		
Clay	20	20
Quicksand and clay	30	50
Hardpan	30	80
Boulders	20	100
Hardpan	31	131
Gravel	4	135
Ot 9: 9L, 5.8S, 0.2E; drilled by N. Comstock		
Clay	7	7
Sand and boulders	10	17
Limestone, loose (Onondaga limestone)	10	27
Limestone, hard (Onondaga limestone)	3	30
Ot 11: 9L, 4.6S, 0.7E; drilled by Gardner Drillers		
Sand, coarse	10	10
Quicksand	2	12
Clay	30	42
Gravel, coarse	18	60
Ot 13: 9L, 5.5S, 1.1E; drilled by Barney Moravec		
Quicksand	20	20
Clay	10	30
Clay and sand	141	171
Ot 20: 9K, 3.2S, 12.1E; drilled by Barney Moravec		
Sand	20	20
Clay	10	30
Sand and clay	10	40
Sand and boulders	10	50
Hardpan	30	80
Limestone (Salina group)	13	93
Ot 55: 9L, 9.0S, 0.7E; drilled by Gardner Drillers		
Fill; crushed stone	0	2
Clay, red	13	15
Clay and gravel	6	21
Gravel, fine	4	25
Sand, black	4	29
Gravel, fine	1	30
Ot 146: 9K, 9.4N, 10.4E; drilled by Gardner Drillers		
Soil	1	1
Gravel, coarse	29	30
Sand and gravel	20	50
Sand, fine, yellow	12	62
Gravel, medium	8	70
Sand, gray	20	90
Clay	25	115
Gravel, fine, and sand	30	145
Sand, fine	20	165
Clay	8	173
Shale ledge (boulder?)	1	174
Gravel, coarse	16	190
Shale, blue (Skaneateles shale)	23	213
Ot 151: 9K, 9.8S, 7.8E; drilled by Gardner Drillers		
Soil	2	2
Hardpan	25	27
Shale, brown	113	140
Ot 178: 9K, 12.9S, 10.4E; drilled by Gardner Drillers		
No record (drilled in dug well)	25	25
Sand and gravel	32	57
Shale, gray	28	85
Ot 184: 9J, 11.5S, 11.1E; drilled by W. C. Putnam		
Soil	8	8
Clay with stones, blue	50	58
Gravel, coarse	2	60
Shale, black	11	71
Ot 186: 9K, 3.8S, 4.2E; drilled by W. C. Putnam		
Sand, red	15	15
Limestone (Onondaga limestone)	13	28
Ot 188: 9K, 3.9S, 1.6E; drilled by W. C. Putnam		
Soil	2	2
Sand with clay, red	6	8
Limestone (Onondaga limestone)	21	29
Ot 203: 9K, 7.9S, 8.7E; drilled by N. Comstock		
Soil	5	5
Shale, soft	25	30
Shale, hard	254	284
Shale, black	1	285
Ot 222: 9K, 2.4S, 1.2E; drilled by Cranston and Son		
Sand, gravel, and clay	7	7
Limestone, creviced and shattered	9	16
Limestone (Onondaga limestone)	54	70
Ot 223: 9K, 2.4S, 1.2E; drilled by P. J. Didas		
Sand, gravel, and cobbles	19	19
Limestone, creviced and shattered	4	23
Limestone (Onondaga limestone)	59	82
Ot 235: 9J, 12.3S, 8.6E; drilled by W. C. Putnam		
Soil	3	3
Gravel	12	15
Shale, gray (West River shale member of Genesee formation)	11	26
Ot 246: 9J, 6.7S, 12.1E; drilled by W. C. Putnam		
Clay, some sand, red	25	25
Quicksand	60	85
Gravel	32	117
Shale, black	61	178
Ot 248: 9J, 11.2S, 12.4E; drilled by W. C. Putnam		
Clay	8	8
Gravel	24	32
Shale, black (Ludlowville shale)	35	67
Ot 249: 9J, 11.5S, 12.2E; drilled by W. C. Putnam		
Soil	6	6
Clay, blue, some boulders	16	22
Sand, fine, and gravel	134	156
Ot 300: 9J, 9.0S, 12.8E; drilled by Gardner Drillers		
Hardpan	5	5
Gravel, medium	30	35
Ot 301: 9J, 6.3S, 10.2E; drilled by W. C. Putnam		
Soil	2	2
Gravel	17	19
Ot 307: 9J, 1.8S, 12.5E; drilled by Gardner Drillers		
Boulders, sand, and gravel	7	7
Limestone, gray (Salina group)	23	30
Limestone, brown (Salina group)	5	35
Ot 312: 9K, 0.3S, 9.8E; drilled by Gardner Drillers		
Sand and gravel	15	15
Hardpan	25	40
Sand	2	42
Shale, black (Salina group)	8	50

Table 9.--Drillers' logs of selected wells and test holes in Ontario County

Part 1.--Logs of wells (Continued)

		Thickness (feet)	Depth (feet)
Ot 318:	9J, 1.7S, 7.5E; drilled by W. C. Putnam		
	Soil	2	2
	Gravel	26	28
	Limestone (Cobleskill dolomite)	2	30
Ot 324:	9J, 10.1S, 10.8E; drilled by W. C. Putnam		
	Soil	2	2
	Clay, silt, and stones	13	15
	Clay, brown	25	40
	Gravel and clay	50	90
	Clay, blue, and gravel, fine	3	93
	Sand, red and white	19	112
	Sand, black	1	113
Ot 380:	9J, 4.7S, 0.7E; driller unknown		
	Sand	100	100
	Gravel	80	180
	Open space	10	190
	Sand, fine, black	10	200
	Clay, white	6	206
Ot 400:	9K, 3.6S, 1.3E; drilled by W. C. Putnam		
	Soil	1	1
	Clay, red	14	15
	Clay and gravel	17	32
	Limestone	12	44
	Gravel (?); water-bearing zone	1	45
Ot 441:	9J, 0.5S, 11.3E; drilled by Donald Rigby		
	Muck	10	10
	Limestone, hard	90	100
	Limestone, gray	50	150
	Limestone, hard, black	50	200
Ot 442:	9K, 2.4N, 1.2E; drilled by Donald Rigby		
	No record (drilled in dug well)	25	25
	Hardpan and boulders	55	80
	Clay, very soft	4	84
	Shale	91	175
Ot 444:	9K, 1.7N, 0.7E; drilled by Donald Rigby		
	Soil	8	8
	Clay	4	12
	Clay, some sand, very loose	6	18
	Hardpan	8	26
	Sand, some fine gravel	17	43
	Sand, coarse	6	49
	Clay	1	50
Ot 447:	9J, 15.0S, 12.2E; drilled by Donald Rigby		
	Sand	27	27
	Boulders	6	33
	Gravel and clay	21	54
	Shale, gray	21	75
	Shale, dark-brown	25	100
	Shale, gray	85	185
	Shale, black	55	240
Ot 488:	9J, 11.4S, 4.8E; drilled by Weaver Bros.		
	Clay and gravel	65	65
	Quicksand	13	78
	Limestone, brown; water-bearing zone	17	95
	Shale, brown and black	455	550
	Flint (Onondaga limestone)	110	660
	Sandstone	15	675
	Limestone	260	935
	Shale, brown	35	970
	Limestone and shale	30	1,000
	Limestone, permeable; water level declined	75	1,075
	Shale, blue	40	1,115
	Shale, red	10	1,125
	Shale, gray	10	1,135
	Shale, red	15	1,150
Ot 488:	9J, 11.4S, 4.8E (continued)		
	Limestone, hard	2	1,152
	Shale, gray, crumbly	13	1,165
	Shale, hard, gray	25	1,190
	Shale, hard, red	20	1,210
	Shale, gray, crumbly	15	1,225
	Shale, red, crumbly	25	1,250
	Shale, gray, crumbly	37	1,287
	Limestone and shale	38	1,325
	Shale, brown, and limestone; yielded gas	35	1,360
	Rock, brown; yielded gas	50	1,410
	Limestone, brown	60	1,470
	Limestone, pink	10	1,480
	Shale, red	60	1,540
	Limestone, broken	60	1,600
	Shale, gray	25	1,625
	Limestone	225	1,850
	Limestone, sandy	75	1,925
	Shale, gray and red	110	2,035
	Limestone, gray	17	2,052
	Sandstone; yielded gas	98	2,150
	Sandstone	14	2,164
	Shale, red	11	2,175
Ot 490:	9J, 11.6S, 2.4E; drilled by Weaver Bros.		
	Soil	1	1
	Gravel	27	28
	Shale, black	1	29
Ot 493:	9J, 11.9S, 2.9E; drilled by Weaver Bros.		
	Soil	2	2
	Gravel	20	22
	Clay	16	38
	Shale (Cashaqua shale member of Sonyea formation)	9	47
Ot 494:	9J, 12.8S, 2.9E; drilled by Weaver Bros.		
	Cashaqua shale member of Sonyea formation to top of Onondaga limestone	1,070	1,070
	Flint (Onondaga limestone)	100	1,170
	Sandstone	5	1,175
	Flint	15	1,190
	Sandstone	47	1,237
	Limestone	13	1,250
	Sandstone	15	1,265
	Limestone, sandy	245	1,510
	Shale	10	1,520
	Limestone, sandy; yields salt water	20	1,540
	Sandstone	60	1,600
	Salt (in Camillus shale)	35	1,635
	Limestone, sandy	35	1,670
	Shale, blue	40	1,710
	Shale, red (Vernon shale)	15	1,725
	Limestone	3	1,728
	Shale, sandy	22	1,750
	Limestone	3	1,753
	Shale, sandy	22	1,775
	Shale, blue	155	1,930
	Salt	15	1,945
	Shale	55	2,000
	Limestone	35	2,035
	Shale, sandy, red	65	2,100
	Shale, gray	20	2,120
	Shale, red	40	2,160
	Limestone, brown	10	2,170
	Limestone	225	2,395
	Limestone, dark	85	2,480
	Limestone, gray	25	2,505
	Shale	47	2,552
	Limestone	14	2,566
	Shale, red	36	2,602
	Limestone, gray	14	2,616
	Sandstone; yielded gas	110	2,726
	Shale, sandy	19	2,745

Table 9.--Drillers' logs of selected wells and test holes in Ontario County

Part 1.--Logs of wells (Continued)

		Thickness (feet)	Depth (feet)
Ot 495:	9J, 15.1S, 2.1E; drilled by Weaver Bros.		
	Soil	5	5
	Gravel	15	20
	Clay, some stones, white	45	65
	Shale, black (Cashaqua shale member of Sonyea formation)	30	95
Ot 503:	10J, 10.8N, 2.6W; drilled by Weaver Bros.		
	Soil	4	4
	Clay	56	60
	Quicksand, gravel, and boulders	55	115
	Gravel	2	117
Ot 534:	9J, 5.1S, 9.7E; drilled by Barney Moravec		
	Unconsolidated material	29	29
	Shale	11	40
	Limestone	3	43
	Shale	57	100
	Limestone	10	110
Ot 558:	9K, 1.5N, 10.4W; drilled by Floyd Van Ingen		
	Soil	6	6
	Clay	14	20
	Sand and quicksand	130	150
	Rock, dark	23	173
Ot 628:	9J, 11.4S, 8.4E; drilled by William Putnam		
	Clay	8	8
	Gravel	27	35
	Shale	170	205
Ot 640:	9J, 14.4S, 9.5E; drilled by W. C. Putnam		
	Sand and clay, red	10	10
	Clay, blue	10	20
	Shale, gray	99	119
Ot 642:	9J, 12.8S, 12.2E; drilled by W. C. Putnam		
	Soil	1	1
	Clay, some sand	9	10
	Gravel and clay, blue	20	30
	Gravel, coarse	2	32
	Clay, blue, some gravel	28	60
	Sand, black	8	68
	Clay, blue	32	100
	Sand, coarse	14	114
Ot 648:	9K, 14.6S, 10.1E; drilled by Donald Rigby		
	Soil, black	10	10
	Hardpan	28	38
	Shale, black	37	75
	Limestone	8	83
	Shale, gray	27	110
	Shale, brown	23	133
Ot 666:	9J, 6.7S, 1.8E; drilled by Gardner Drillers		
	Soil	1	1
	Clay, yellow	10	11
	Hardpan and boulders	188	199
	Sand	3	202
	Clay	17	219
	Gravel	1	220
Ot 744:	10J, 8.0S, 5.7E; drilled by L. Keith		
	Soil	3	3
	Gravel	5	8
	Shale, soft with several hard interbedded layers (Cashaqua shale member of Sonyea formation)	142	150
Ot 762:	10J, 7.3S, 4.1E; drilled by L. Keith		
	Sand, gravel, and quicksand	60	60
	Sand, medium	6	66
Ot 764:	10J, 4.8S, 4.2E; drilled by L. Keith		
	Soil	3	3
	Sand and gravel	32	35
	Clay	25	60
	Shale, soft	48	108
Ot 765:	9J, 8.5S, 1.0E; drilled by Gardner Drillers		
	Soil	1	1
	Clay, trace of gravel	19	20
	Sand and gravel	10	30
	Clay, trace of gravel	20	50
	Sand and gravel	5	55
	Sand and gravel, trace of clay	30	85
	Clay, trace of gravel	20	105
	Sand and gravel	15	120
	Clay, trace of gravel	20	140
	Sand and gravel	10	150
	Gravel, trace of clay	11	161
	Shale, loose	30	191
	Shale, brown	24	215
Ot 767:	9J, 9.7S, 12.6E; drilled by W. C. Putnam		
	Clay, sandy	10	10
	Clay, blue, some boulders	15	25
	Gravel and sand, black	20	45
Ot 777:	10J, 4.8S, 3.0E; drilled by L. Keith		
	Loam, sandy	15	15
	Quicksand	10	25
	Gravel and clay	30	55
	Clay, soft	30	85
	Gravel and sand	10	95
	Sand, fine	7	102
	Clay	3	105
	Gravel, medium	3	108
Ot 782:	10J, 11.9S, 2.0E; drilled by L. Keith		
	Soil	2	2
	Gravel	24	26
	Quicksand	6	32
	Gravel, fine	8	40
	Sand	4	44
	Gravel, medium	1	45
Ot 784:	10J, 8.6S, 6.0E; drilled by S. Keith		
	Mud and gravel	13	13
	Shale, soft, light, some water	423	436
	Shale, gray, gas pocket at 650 ft	314	750
	Limestone, hard	25	775
	Shale, brown	115	890
	Limestone, hard	10	900
	Shale, dark-brown	30	930
	Shale, light-brown, gas at 934 ft	22	952
	Shale, dark-brown	238	1,190
	Shale, gas at 1,210 ft (Marcellus shale)	45	1,235
	Limestone (Onondaga limestone)	?	?
Ot 822:	9K, 5.8S, 0.7E; drilled by W. C. Putnam		
	Clay, red	13	13
	Clay, blue, and gravel	19	32
	Gravel	24	56
	Shale, blue	74	130
Ot 824:	9K, 0.7S, 5.7E; drilled by W. C. Putnam		
	Clay, some sand, red	20	20
	Gravel and clay, blue	24	44
	Clay, some sand, red	9	53
	Gravel	1	54
	Limestone with gypsum (Salina group)	3	57
Ot 838:	9K, 6.9S, 11.3E; drilled by Donald Rigby		
	Soil	3	3
	Hardpan	32	35
	Shale, soft, crumbly, brown	12	47
	Shale, firm	83	130
	Limestone (Onondaga limestone)	45	175

Table 9.--Drillers' logs of selected wells and test holes in Ontario County

Part 1.--Logs of wells (Continued)

		Thickness (feet)	Depth (feet)
Ot 841:	9J, 2.3S, 12.9E; drilled by Cranston and Son		
	Topsoil	1	1
	Clay, red	14	15
	Sand and gravel	4	19
	Sand, fine	5	24
	Sand and gravel	3	27
Ot 842:	9K, 14.2S, 5.6E; drilled by Barney Moravec		
	Sand	4	4
	Muck	2	6
	Quicksand	14	20
	Clay	2	22
	Gravel	9	31
Ot 846:	9J, 6.2S, 10.2E; drilled by W. C. Putnam		
	Clay, red	10	10
	Clay, sand, and gravel (till)	41	51
	Shale, black (Skaneateles shale)	10	61
Ot 847:	9J, 0.5S, 3.1E; drilled by W. C. Putnam		
	Sand	6	6
	Clay, some sand	10	16
	Clay, sand, and gravel (till)	29	45
	Limestone (Salina group)	28	73
Ot 870:	9J, 1.5N, 3.0E; drilled by F. C. Ewart		
	Sand	24	24
	Clay, hard	40	64
	Gumbo, blue	50	114
	Gravel	30	144
	Sand	44	188
	Gravel, coarse	5	193
Ot 871:	9J, 0.0N, 1.5E; drilled by F. C. Ewart		
	Clay	12	12
	Sand	14	26
	Gravel	9	35
Ot 880	9J, 2.6S, 4.5E; drilled by W. C. Putnam		
	Soil	10	10
	Clay, red, some sand	20	30
	Clay, sticky	30	60
	Sand, fine	12	72
	Clay, blue	12	84
	Limestone, hard	74	158
Ot 883:	9J, 3.3S, 4.5E; drilled by W. C. Putnam		
	Clay, gravel, and boulders	82	82
	Sand	14	96
	Clay, red	50	146
	Gravel, some sand	2	148
	Limestone (Onondaga limestone)	27	175
Ot 884:	9J, 2.6S, 5.2E; drilled by W. C. Putnam		
	Clay, some sand	55	55
	Gravel	3	58
Ot 886:	9J, 4.3S, 7.1E; drilled by W. C. Putnam		
	Clay, red	45	45
	Clay, blue, and gravel	30	75
	Shale (Marcellus shale)	55	130
	Limestone (Onondaga limestone)	15	145
Ot 889:	10J, 3.0N, 0.6W; drilled by Cranston and Son		
	Topsoil	1	1
	Clay, sand, and gravel	9	10
	Clay, some shale, gravel, firm	9	19
	Sand and gravel	2	21
	Clay, blue, and fine sand (contains pieces of logs and pine cones)	11	32
	Sand and gravel	9	41
	Clay, blue, firm	2	43
Ot 900:	9K, 1.7S, 1.0E; drilled by Stewart Bros.		
	Till	5	5
	Sand, medium	5	10
	Shale, gray, and some layers of gypsum	110	120
	Sandstone	10	130
	No record	5	139
Ot 901:	9J, 2.9S, 9.3E; drilled by W. C. Putnam		
	Clay	14	14
	Limestone, hard (Onondaga limestone)	17	31
Ot 909:	9J, 5.2S, 11.0E; drilled by W. C. Putnam		
	Clay, red	22	22
	Clay, blue	35	57
	Gravel and clay	4	61
	Sand, coarse	1	62
Ot 912:	9J, 5.3S, 10.0E; drilled by W. C. Putnam		
	Soil	2	2
	Clay	6	8
	Clay, blue, and stones	24	32
	Sand	6	38
	Shale, gray	80	118
Ot 922:	9J, 8.5S, 5.7E; drilled by L. Ward		
	Soil	3	3
	Clay	20	23
	Gravel	3	26
	Shale boulder	1	27
	Gravel, fine	1	28
Ot 929:	9J, 8.0S, 4.6E; drilled by W. C. Putnam		
	Soil	2	2
	Clay and gravel	16	18
	Clay, blue	4	22
	Shale, gray (Ludlowville shale)	28	50
Ot 934:	9J, 2.9S, 3.5E; drilled by W. C. Putnam		
	Clay, red	53	53
	Clay and stones	10	63
	Limestone (Onondaga limestone)	4	67
Ot 935:	9J, 3.2S, 1.6E; drilled by L. Ward		
	Soil	10	10
	Clay and sand	80	90
	Sand, coarse to fine	10	100
	Sand, coarse, some fine	81	181
Ot 940:	9J, 10.3S, 12.6E; drilled by W. C. Putnam		
	Clay and boulders	27	27
	Shale, gray	39	66
	Shale, black	32	98
Ot 946:	10J, 4.7S, 0.6E; drilled by L. Keith		
	Soil	3	3
	Gravel, sand, and silt	5	8
	Clay	72	80
	Gravel, fine	11	91

Table 9.--Drillers' logs of selected wells and test holes in Ontario County

Part 1.--Logs of wells (Continued)

	Thickness (feet)	Depth (feet)
Ot 947: 10J, 1.4S, 7.7E; drilled by W. C. Putnam		
Clay, blue	40	40
Shale	130	170
Ot 951: 9J, 16.0S, 8.9E; drilled by W. C. Putnam		
Clay, blue, and gravel	23	23
Shale, gray	19	42
Shale, black	70	112
Ot 962: 9J, 12.6S, 8.8E; drilled by L. Keith		
Clay	30	30
Clay and stones	25	55
Quicksand	7	62
Clay	2	64
Shale (West River shale member of Genesee formation)	20	84
Ot 965: 9K, 6.2S, 12.2E; drilled by T. Hall		
Sand	10	10
Sand and gravel	$25\frac{1}{2}$	$35\frac{1}{2}$
Limestone ledge (boulder?)	$\frac{1}{2}$	36
Sand and gravel	1	37
Ot 966: 9K, 8.2S, 11.3E; drilled by T. Hall		
Soil	1	1
Hardpan	64	65
Shale, soft, brown (Skaneateles shale)	11	76
Ot 968: 9L, 4.6S, 0.3E; drilled by T. Hall		
No record (drilled in dug well)	18	18
Clay	20	38
Sand and gravel	12	50
Gravel	16	66
Ot 970: 9K, 3.7S, 12.1E; drilled by T. Hall		
Gravel	20	20
Clay	46	66
Sand, coarse, and gravel	3	69
Ot 972: 9L, 1.5S, 1.2E; drilled by T. Hall		
Soil	1	1
Clay	9	10
Sand	12	22
Hardpan	5	27
Limestone	13	40
Ot 973: 9L, 4.2S, 1.8E; drilled by T. Hall		
Hardpan	30	30
Clay, some sand	80	110
Hardpan	5	115
Limestone (Cobleskill dolomite)	5	120
Ot 974: 9L, 4.3S, 1.9E; drilled by T. Hall		
Sand	113	113
Hardpan	10	123
Shale, brown	12	135
Limestone	35	170
Ot 976: 9L, 5.6S, 1.2E; drilled by T. Hall		
Soil	1	1
Sand	19	20
Clay	20	40
Sand, fine	15	55
Sand, coarse	20	75
Ot 977: 9K, 2.3S, 12.1E; drilled by T. Hall		
Fill; gravel	1	1
Hardpan	4	5
Sand, yellow	15	20
Sand, gray	18	38
Gravel, fine	5	43
Ot 978: 9K, 2.3S, 12.5E; drilled by T. Hall		
Soil	1	1
Clay	9	10
Sand, yellow	20	30
Sand, gray	19	49
Sand, coarse	5	54

	Thickness (feet)	Depth (feet)
Ot 982: 9K, 2.7S, 7.5E; drilled by T. Hall		
Soil	1	1
Hardpan	34	35
Limestone (Onondaga limestone)	7	42
Ot 985: 9L, 5.2S, 0.1E; drilled by T. Hall		
Soil	1	1
Sand, yellow	24	25
Clay, red	40	65
Sand	15	80
Gravel	7	87
Ot 986: 9L, 6.7S, 0.2E; drilled by T. Hall		
Sand and clay	18	18
Limestone, hard (Onondaga limestone)	64	82
Ot 988: 9J, 3.8S, 8.7E; drilled by W. C. Putnam		
Gravel, boulders, and clay (till)	25	25
Shale, black (Marcellus shale)	7	32
Limestone (Onondaga limestone)	20	52
Ot 991: 9K, 3.2S, 0.1E; drilled by W. C. Putnam		
Sand	6	6
Clay	14	20
Gravel	6	26
Ot 992: 9K, 0.1N, 2.1E; drilled by T. Hall		
Hardpan	15	15
Shale, brown	8	23
Limestone	47	70
Ot 993: 9K, 4.2S, 1.3E; drilled by T. Hall		
Soil	1	1
Sand	4	5
Clay	5	10
Sand	20	30
Sandstone	24	54
Limestone	16	70
Ot 994: 9K, 3.9S, 3.3E; drilled by W. C. Putnam		
No record (drilled in dug well)	16	16
Sand, red	8	24
Limestone (Onondaga limestone)	6	30
Ot 999: 9K, 2.7S, 4.5E; drilled by T. Hall		
Sand	12	12
Clay	17	29
Gravel	1	30
Limestone, hard	1	31
Ot 1001: 9K, 6.0S, 0.5E; drilled by W. C. Putnam		
Clay, red	12	12
Sand and gravel	3	15
Shale (Skaneateles shale)	50	65
Ot 1002: 9K, 6.0S, 0.5E; drilled by W. C. Putnam		
Clay and boulders	35	35
Gravel	11	46
Ot 1008: 9J, 8.2S, 7.1E; drilled by L. Keith		
Soil	3	3
Clay and boulders	67	70
Clay, hard	37	107
Shale (Skaneateles shale)	78	185
Ot 1019: 9K, 1.8S, 7.7E; drilled by W. C. Putnam		
Clay	43	43
Sand	2	45
Ot 1028: 9J, 6.7S, 3.4E; drilled by W. C. Putnam		
Clay, red	6	6
Clay, gray	16	22
Gravel and sand	1	23

Table 9.--Drillers' logs of selected wells and test holes in Ontario County

Part 1.--Logs of wells (Continued)

		Thickness (feet)	Depth (feet)
Ot 1029:	9J, 6.6S, 1.7E; drilled by L. Keith		
	Soil	5	5
	Clay	65	70
	Sand and gravel	10	80
	Gravel	2	82
Ot 1030:	9J, 4.9S, 0.4E; drilled by L. Keith		
	Soil	3	3
	Sand, fine	27	30
	Clay and boulders	55	85
	Clay, fine	45	130
	Gravel	1	131
Ot 1031:	9J, 5.0S, 1.6E; drilled by L. Keith		
	No record (drilled in dug well)	12	12
	Clay	43	55
	Quicksand	35	90
	Gravel	6	96
	Sand	2	98
Ot 1032:	10J, 10.8N, 0.9W; drilled by W. C. Putnam		
	Clay	20	20
	Gravel	75	95
Ot 1035:	10J, 10.7N, 2.9W; drilled by W. C. Putnam		
	Soil	4	4
	Sand	52	56
	Gravel	14	70
Ot 1037:	10J, 10.2N, 1.0W; drilled by W. C. Putnam		
	Clay, some sand	60	60
	Sand and gravel, red	122	182
	Clay, blue	8	190
	Quicksand	12	202
	Sand	7	209
Ot 1039:	9K, 5.8S, 0.7E; drilled by W. C. Putnam		
	Soil	1	1
	Clay, red	11	12
	Clay, blue, and stone	25	37
	Gravel and sand	2	39
Ot 1050:	9K, 11.2S, 4.2E; drilled by L. Keith		
	Soil	3	3
	Gravel, sand, and silt	4	7
	Boulders	6	13
	Shale, gray	87	100
	Limestone or hard shale	35	135
	Shale, hard	4	139
Ot 1052:	9K, 13.7S, 6.2E; drilled by T. Hall		
	Sand	15	15
	Hardpan	20	35
	Limestone (Tully limestone)	6	41
	Shale (Moscow shale)	84	125
Ot 1053:	9K, 13.8S, 5.9E; drilled by L. Keith		
	No record (drilled in dug well)	10	10
	Gravel, sand, and silt	16	26
	Shale, gray (Moscow shale)	36	62
Ot 1054:	9K, 14.0S, 5.9E; drilled by T. Hall		
	Sand, yellow	8	8
	Sand and gravel	39	47
Ot 1055:	9K, 14.9S, 6.4E; drilled by L. Keith		
	No record (drilled in dug well)	40	40
	Sand and gravel	20	60
	Shale (Geneseo shale member of Genesee formation)	28	88
Ot 1056:	9K, 15.5S, 6.DE; drilled by L. Keith		
	Soil	3	3
	Gravel	35	38
	Sand	12	50
	Sand and gravel	5	55
	Shale, dark-brown	15	70
	Shale, gray	68	138
Ot 1057:	9K, 13.1S, 7.1E; drilled by T. Hall		
	Soil	1	1
	Hardpan	24	25
	Shale, brown	15	40
Ot 1059:	9K, 13.1S, 7.1E; drilled by T. Hall		
	Soil	1	1
	Hardpan	17	18
	Shale, brown (Ludlowville shale)	82	100
Ot 1067:	9L, 16.5S, 1.2E; drilled by Donald Rigby		
	Gravel, some sand and silt	10	10
	Sand, fine	6	16
	Gravel, coarse	8	24
	Gravel, fine, and sand	14	38
	Gravel with shale fragments	12	50
	Shale, black	30	80
	Shale, gray	16	96
Ot 1068:	9L, 13.8S, 1.2E; drilled by T. Hall		
	Hardpan	3	3
	Sand and gravel	87	90
	Hardpan	10	100
	Sand and gravel	5	105
Ot 1069:	9K, 11.9S, 6.4E; drilled by Donald Rigby		
	Gravel, some silt and sand	70	70
	Gravel, cemented	20	90
	Sand, coarse	2	92
	Gravel, cemented	18	110
Ot 1073:	9J, 8.7S, 10.6E; drilled by W. C. Putnam		
	Clay, red	10	10
	Clay, blue, and stone	49	59
	Gravel	1	60
Ot 1074:	9J, 8.7S, 10.6E; drilled by W. C. Putnam		
	Clay, red	10	10
	Clay, blue, and stone	26	36
	Gravel	1	37
Ot 1075:	9J, 8.8S, 10.5E; drilled by W. C. Putnam		
	Boulders, sand, and silt	12	12
	Clay, blue	31	43
	Sand and gravel, red	7	50
Ot 1078:	9J, 12.6S, 10.8E; drilled by W. C. Putnam		
	Soil	1	1
	Clay, blue	8	9
	Shale, gray (Ludlowville shale)	19	28
	Shale (Ludlowville shale)	36	64
Ot 1080:	9J, 12.8S, 10.6E; drilled by L. Keith		
	Soil	4	4
	Shale, gray	6	10
	Shale, brown	75	85
	Shale, gray	23	108
Ot 1091:	10J, 8.7S, 6.3E; drilled by L. Keith		
	Clay	22	22
	Shale	100	122
Ot 1094:	10J, 10.2S, 4.4E; drilled by L. Keith		
	Soil	3	3
	Gravel	9	12
	Clay	34	46
	Sand, fine	1	47
Ot 1097:	10J, 7.0S, 1.1E; drilled by L. Keith		
	Soil	3	3
	Gravel	18	21
	Sand	4	25
	Quicksand	11	36
	Gravel	1	37
Ot 1107:	10J, 2.2S, 4.0E; drilled by L. Keith		
	Clay	10	10
	Quicksand	11	21
	Gravel	2	23

Table 9.--Drillers' logs of selected wells and test holes in Ontario County

Part 1.--Logs of wells (Continued)

	Thickness (feet)	Depth (feet)
Ot 1109: 10J, 1.0S, 3.2E; drilled by L. Keith		
Soil	3	3
No record	9	12
Gravel	8	20
No record	5	25
Sand, fine	15	40
Clay	7	47
Gravel	1	48
Ot 1110: 10J, 1.2S, 3.1E; drilled by L. Keith		
Gravel	10	10
No record	20	30
Quicksand, brown	15	45
Quicksand, gray	14	59
Sand	1	60
Ot 1111: 10J, 1.7S, 3.5E; drilled by L. Keith		
Soil	3	3
Gravel and soil	22	25
Clay	24	49
Sand	1	50
Ot 1112: 10J, 1.8S, 3.5E; drilled by L. Keith		
Soil	3	3
Gravel and soil	26	29
Clay	30	59
Sand	1	60
Ot 1113: 10J, 2.3S, 3.9E; drilled by L. Keith		
Clay	45	45
Sand and gravel	7	52
Clay and quicksand	38	90
Gravel	18	108
Shale (Hatch shale member of West Falls formation)	17	125
Ot 1114: 10J, 2.5S, 3.9E; drilled by L. Keith		
Soil	2	2
Clay	18	20
Sand and gravel	32	52
Ot 1115: 10J, 2.1S, 3.7E; drilled by L. Keith		
Soil	3	3
Clay and gravel	21	24
Gravel, fine and medium	1	25
Ot 1126: 9J, 0.5N, 3.4E; drilled by Stewart Bros.		
Sand, silt, and coarse gravel	13	13
Hardpan	3	16
Sand, silt, clay and gravel; water-bearing	4	20
Gravel, fine, some silt, clay, and sand	3	23
Hardpan, some fine gravel, clay, and silt, red	32	55
Clay and silt, red	5	60
Clay and silt, red, trace of gravel	10	70
Gravel, fine, sand, silt, and clay.	10	80
Sand, fine, silt, and clay	20	100
Gravel, boulders, sand, silt, and clay, gray	5	105
Shale, dark-gray (Salina group to 200 ft)	35	140
Shale, dolomitic; some gypsum, dark-red	36	176
Shale	4	180
Shale, dolomitic, some gypsum	10	190
Shale, dolomitic	10	200
Ot 1127: 9J, 0.1S, 4.3E; drilled by Stewart Bros.		
Sand, silt, and clay, some gravel, dark-brown	10	10
Sand, silt, and clay, light-brown	5	15
Sand, silt, and clay, gray	20	35
Gravel; yielded 18 gpm	5	40
Sand, fine, and silt	5	45
Gravel; yielded 25 gpm	12	57
Sand, fine, and silt	3	60
Sand, fine, some gravel	10	70
Clay and silt, few gravel particles	24	94
Hardpan, boulders, clay, and silt	18	112
Shale, dark-gray (Salina group to 200 ft)	7	119
Shale	6	125
Shale with gypsum	15	140
Shale	15	155
Shale with gypsum	15	170
Shale	10	180
Shale with gypsum	10	190
Shale	10	200
Ot 1128: 9K, 1.9S, 3.5E; drilled by Stewart Bros.		
Silt, some clay, trace of fine sand and fine rounded gravel, brown	5	5
Gravel, fine, rounded, some silt, trace of fine sand and clay, dry, soft, nonplastic, brown	8	13
Boulder	2	15
Gravel, fine, some silt and clay, trace of fine sand, moist, hard, nonplastic, brown	5	20
Gravel, fine, trace of clay and silt	8	28
Limestone, gray (Salina group)	22	50
Ot 1129: 9K, 1.9S, 3.5E; drilled by Stewart Bros.		
Silt, trace of clay and fine rounded gravel, dry, soft, brown.	5	5
Gravel, fine, rounded, trace of clay and silt, dry, brown	5	10
Gravel, fine, some silt and clay, dry, gray	5	15
Gravel, fine, some silt and clay, moist, gray	11	26
Gravel	1	27
Limestone containing some gypsum, fractured (Salina group)	73	100
Ot 1130: 9K, 1.9S, 3.9E; drilled by Stewart Bros.		
Silt, trace of clay and fine gravel, dry, brown	5	5
Gravel, fine, some clay and silt, dry, brown	5	10
Gravel, coarse to fine, some silt, trace of clay, dry, brown	15	25
Limestone containing gypsum, and layers of mud or crushed rock (Salina group)	26	51

Table 9.--Drillers' logs of selected wells and test holes in Ontario County

Part 2.--Logs of test holes

(All test holes in this part were drilled by the New York State Department of Public Works)

	Thickness (feet)	Depth (feet)
Ot 1134: 9J, 1.1N, 1.4E; Thruway bridge at Fishers Road		
Topsoil	1	1
Sand, fine, silt, and clay, slightly moist, mottled brown	9	10
Sand, very fine, silt, moist, brown	1	11
Sand, fine, silt, and clay in alternating layers, moist, brown	2	13
Sand, fine, and silt, moist, brown	2	15
Sand, medium, and silt, saturated, brown	3	18
Sand, fine, silt, and clay in alternating layers, wet, brown	9	27
Sand, fine, moist, dark-brown	2	29
Sand, fine, silt, and clay in alternating layers, wet, dark-brown	10	39
Sand, medium, little silt, wet, gray	2	41
Sand, fine, silt, and clay in alternating layers, wet, gray	10	51
Ot 1138: 9J, 1.1N, 1.5E; Thruway bridge at New York Central R. R.		
Topsoil	2	2
Sand, fine, and silt, brown	3	5
Sand, fine, light-brown	4	9
Silt, some clay, brown	5	14
Sand, fine, and silt, brown	3	17
Sand, fine, and silt alternating with thin layers of red clay	4	21
Sand, fine, some silt, brown	5	26
Sand, brown	3	29
Sand, medium, some silt, brown	9	38
Silt, fine sand, and clay, gray	11	49
Sand, fine, gray	3	52
Sand, fine, and silt, gray	15	67
Sand, medium to coarse, some gravel, gray	4	71
Sand, fine, gray	10	81
Sand, fine to medium, gray	7	88
Sand, fine, gray	5	93
Sand, fine to medium, gray	4	97
Ot 1139: 9J, 1.1N, 1.7E; Thruway bridge over Irondoquoit Creek		
Sand, silt, and gravel, brown	3	3
Sand, very fine, silt muck, dark-gray	4	7
Sand, fine, some gravel, saturated, brown	11	18
Sand, fine to medium, some gravel, saturated, brown	24	42
Sand, fine, silt, trace of clay, wet, red-brown	3	45
Sand, fine, and silt, brown	12	57
Sand, very fine, silt, and trace of clay, dark-brown	4	61
Sand, very fine, saturated, brown	9	70
Ot 1143: 9J, 1.1N, 1.8E; Thruway crossing at Log Cabin Road		
Gravel, sand, and silt	15	15
Boulder	1	16
Gravel, sand, and silt	2	18
Boulders	2	20
Gravel, sand, and silt	7	27
Boulders	3	30
Gravel, sand, and silt	5	35
Boulders	2	37
Gravel, sand, and silt	3	40
Ot 1148: 9J, 0.6N, 3.1E; Thruway bridge at Interchange No. 45		
Topsoil, sand, some silt	2	2
Silt, some sand, brown	9	11
Sand, some silt, trace of gravel, gray	17	28
Silt, some sand, trace of gravel, brown	12	40
Sand, some silt, trace of gravel, brown	5	45
Silt, some sand, and gravel, compact, brown	1	46
Silt, some sand and gravel, hard and dense, dark-brown	7	53
Ot 1157: 9J, 0.5N, 3.3E; Thruway bridge at Willow Road		
Topsoil, sand and gravel	1	1
Gravel, some sand, loose, moist, brown	14	15
Clay loam, some gravel, dense, gray	13	28
Ot 1163: 9J, 0.2S, 6.1E; Thruway bridge over Brownville Road		
Topsoil	2	2
Sand, fine to medium, compact, brown	4	6
Sand and gravel, coarse, loose, brown	1	7
Sand, fine to medium, and gravel, brown	7	11
Sand, fine, brown	1	12
Sand, fine, some silt and gravel, gray	3	15
Clay and silt, gray	4	19
Sand, fine to coarse, some gravel, compact, gray	11	30
Sand, fine, and silt, gray	3	33
Sand, silt, and clay, some gravel, gray	3	36
Silt and fine sand, some gravel, gray	4	37
Ot 1164: 9J, 0.3S, 6.4E; Thruway bridge over Ganargua Creek		
Sand, fine, silt, and clay, mottled	3	3
Sand, very fine, and silt, gray	7	10
Sand, coarse, and silt, some gravel and organic matter, dark-brown	2	12
Sand, fine, shaley, and silt, dark-brown	4	16
Sand, fine to coarse, and silt, some organic matter, gray	1	17
Shale, disintegrated, fine sand and silt, gray (Salina group)	2	19
Sand, fine, and silt, dark-brown	1	20
Shale, soft, and silt in alternating layers, brown-gray, (Salina group to 45 ft)	9	29
Shale, soft, dark-gray (Salina group)	2	31
Limestone and gypsum in alternating layers	14	45

Table 9.--Drillers' logs of selected wells and test holes in Ontario County

Part 2.--Logs of test holes (Continued)

	Thickness (feet)	Depth (feet)
Ot 1169: 9J, 0.3S, 6.7E; Thruway crossing at Crowley Road		
Topsoil	1	1
Sand, very fine, and silt, some gravel, brown	14	15
Clay and silt, dark-red	5	20
Clay, red	1	21
Sand, fine, silt, disintegrated rock, gray	4	25
Rock, disintegrated, fine sand and silt, mottled, gray	2	27
Sand, very fine, and silt, light-gray	3	30
Rock with gypsum (Salina group)	3	33
Open space	1	34
Rock and silt, dark-gray (Salina group to 43 ft)	3	37
Rock, dark-gray	6	43
Ot 1177: 9J, 0.9S, 7.0E; Bridge on New York Highway 332 over Lehigh Valley R. R.		
Fill	5	5
Sand, fine, silt, stones, some gravel	3	8
Sand, silt, and gravel, gray	2	10
Rock, soft, compact, gray (Salina group to 33 ft)	3	13
Rock, gray, disintegrated, consisting of alternating hard and soft layers	7	20
Gypsum, gray, alternating with layers of white gypsum 1/16 inch thick	13	33
Ot 1181: 9J, 0.4S, 7.9E; Thruway bridge over Pumpkin Hook Road		
Silt, trace of sand and gravel	1	1
Shale, disintegrated (Salina group to 23 ft)	2	3
Limestone, soft, some silt	9	12
Limestone	11	23
Ot 1189: 9J, 0.5S, 8.8E; Thruway bridge over Farmington Road		
Topsoil	1	1
Silt, trace of sand and shaly gravel	10	11
Shale, disintegrated (Salina group to 24 ft)	4	15
Limestone, shaly	9	24
Ot 1191: 9J, 1.3S, 11.5E; Thruway bridge over Blacksmith Corners Road		
Fill	1	1
Silt, some sand and gravel	5	6
Silt, some sand, trace of gravel	6	12
Shale, disintegrated (Salina group to 26 ft)	8	20
Limestone, shaly	6	26
Ot 1196: 9K, 1.4S, 0.8E; Thruway bridge at Interchange No. 43		
Silt and sand, some gravel, brown	1	1
Gravel, some sand and silt, gray	7	8
Shale, disintegrated, dark-gray (Salina group to 24 ft)	6	14
Limestone, shaly	10	24
Ot 1197: 9K, 1.5S, 1.3E; Thruway crossing at N. Y. State Highway 21		
Sand, some silt, and gravel	5	5
Silt, some sand, trace of shaly gravel	6	11
Shale, disintegrated (Salina group to 33 ft)	12	23
Limestone, shaly	10	33
Ot 1199: 9K, 1.6S, 1.8E; Thruway bridge over Canandaigua Outlet		
Sand, some gravel and silt, gray	10	10
Shale, disintegrated, gray (Salina group to 22 ft)	7	17
Limestone, shaly	5	22
Ot 1209: 9K, 1.7S, 3.5E; Thruway bridge over Canandaigua Outlet		
Topsoil, brown	2	2
Silt, some sand, brown	4	6
Silt, some sand, trace of gravel and clay, plastic, brown	3	9
Sand and gravel, some silt, brown	1	10
Shale, disintegrated, gray (Salina group to 27 ft)	12	22
Limestone, shaly	5	27
Ot 1213: 9K, 1.7S, 3.6E; Thruway crossing at Port Gibson Road		
Sand, some silt and gravel	6	6
Sand, some gravel and silt	10	16
Limestone, shaly (Salina group)	5	21
Ot 1228: 9K, 1.9S, 4.7E; Thruway bridge over Fall Brook		
Topsoil	1	1
Gravel, sand, and silt, brown and gray	12	13
Limestone, shaly, soft	3	16
Gravel and sand, trace of silt, gray	3	19
Silt, some sand, trace of gravel, red	4	23
Limestone, shaly, soft (Salina group)	2	25
Silt, some sand, trace of gravel	1	26
Limestone, shaly, soft (Salina group)	4	30
Ot 1235: 9K, 1.8S, 5.5E; Thruway crossing at Kendall Road		
Fill	11	11
Silt, some sand, trace of gravel	9	20
Shale, disintegrated (Salina group to 36 ft)	11	31
Limestone, shaly	5	36
Ot 1245: 9K, 2.0S, 8.6E; Thruway bridge at Pennsylvania R. R.		
Topsoil	½	½
Silt, some sand, trace of gravel	4½	5
Limestone, broken, trace of sand and silt (Cobleskill dolomite to 17 ft)	2	7
Limestone, shaly	10	17
Ot 1249: 9K, 2.2S, 9.0E; Thruway bridge over N. Y. State Highway 88		
Silt, some sand, trace of gravel	6	6
Silt, some sand and gravel	2	8
Shale, soft (Cobleskill dolomite to 26 ft)	1	9
Limestone, shaly	17	26
Ot 1251: 9K, 2.3S, 9.7E; Thruway bridge over Canandaigua Outlet		
Topsoil	1	1
Silt, some sand, trace of gravel, and vegetable matter, black	9	10
Silt, some shaly gravel and sand, brown	5	15
Silt, some sand and shaly gravel	4	19
Limestone, shaly (Salina group)	9	28
Ot 1260: 9K, 2.3S, 9.9E; Thruway crossing at Marbletown Road		
Silt, some sand, trace of gravel	6	6
Silt, some sand and gravel	9	15
Gravel, shaly, some sand and silt	7	22
Silt, some sand, trace of shaly gravel	4	26
Gravel, shaly, some sand and silt	5	31
Silt, some sand and shaly gravel	17	48
Limestone, shaly (Salina group)	4	52

Table 9.--Drillers' logs of selected wells and test holes in Ontario County

Part 2.--Logs of test holes (Continued)

	Thickness (feet)	Depth (feet)
Ot 1263: 9K, 2.7S, 10.7E; Thruway crossing at Gifford Road		
Fill, sand and gravel	10	10
Silt, some sand	9	19
Silt, some sand, trace of gravel	4	23
Silt and sand, some shaly gravel	2	25
Silt, some sand, trace of shaly gravel	6	31
Shale, disintegrated (Salina group to 48 ft)	4	35
Limestone, shaly, seamy	10	45
Shale, disintegrated	3	48
Ot 1264: 9K, 3.0S, 12.2E; Thruway crossing at Pre-Emption Road		
Sand, some silt	10	10
Silt, some sand, trace of gravel	13	23
Silt, trace of sand	2	25
Silt, some sand and gravel	5	30
Gravel, some sand and silt	31	61
Shale, disintegrated (Salina group to 80 ft)	17	78
Limestone, shaly, soft	2	80
Ot 1272: 9L, 3.2S, 0.5E; Thruway bridge over Canandaigua Outlet		
Topsoil	1	1
Silt, some sand, gray and brown	5	6
Sand, some gravel and silt, gray	30	36
Silt, sand, and gravel, gray	11	47
Shale, soft (Salina group)	8	55
Ot 1273: 9L, 3.2S, 0.9E; Thruway bridge at Interchange No. 42		
Muck, brown	5	5
Gravel, some sand and silt, brown	7	12
Sand, some gravel, trace of silt, brown	3	15
Sand, trace of silt and gravel, gray	4	19
Sand, trace of silt, brown	8	27
Silt, trace of sand, brown	13	40
Silt, some sand, trace of gravel, gray	5	45
Silt, some sand and gravel, hard, dense, gray	6	51
Limestone, shaly with seams (Salina group)	5	56
Ot 1278: 9L, 3.2S, 1.2E; Thruway crossing at N. Y. State Highway 14		
Topsoil	1	1
Silt, trace of sand, gravel, and clay, red-brown	4	5
Silt, some sand, trace of gravel, brown	11	16
Sand, some silt, trace of gravel, brown	13	29
Silt, some sand, trace of gravel, brown	7	36
Sand, some silt, gray	4	40
Sand, some silt, brown	12	52
Ot 1286: 9L, 3.2S, 1.3E; Thruway crossing at N. Y. Central R. R., Fall Brook Branch		
Topsoil	1	1
Silt, trace of sand and gravel, brown	5	6
Silt, trace of sand and clay, brown	6	12
Silt, some sand and gravel, brown	4	16
Silt, some sand, brown	22	38
Silt and sand, some gravel, gray	14	52
Ot 1288: 9L, 9.1S, 1.2E; Geneva, on U. S. Highway 20 at Castle Creek		
Boulders and washed sand	3	3
Sand, trace of silt and gravel	40	43
Silt, trace of clay, sand, and gravel, plastic	35	78
Gravel and sand, some silt, hard, dense	13	91
Ot 1289: 9L, 9.4S, 1.0E; U. S. Highway 20 at Geneva boat basin		
Silt, trace of sand	6	6
Silt, some sand	10	16
Silt, trace of clay and sand, plastic	81	97
Silt, some sand and gravel	5	102
Ot 1290: 9K, 8.6S, 0.1W; Bridge on U. S. Highway 20 over Canandaigua Outlet		
Topsoil	1	1
Sand, some silt, trace of vegetable matter, mottled, brown	4	5
Silt, trace of sand, gravel and clay, dense, red	5	10
Silt, some sand and gravel, medium plastic, red	19	29
Silt, some sand and gravel, compact, gray-brown	13	42
Ot 1296: 9K, 9.0S, 0.5E; Bridge on U. S. Highway 20 over Fall Creek		
Topsoil	1	1
Shale, disintegrated	8	9
Shale (Ludlowville shale)	10	19

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells

Well number: See section in text entitled "Well-Location System".

Location: For explanation of location coordinates see section entitled "Well-Location System".

Altitude: Estimated from topographic maps.

Type of well: Drl, drilled; Drv, driven.

Water-bearing unit: Descriptions of aquifers are included in table 2.

Water level: Measurements made by U. S. Geological Survey are reported to nearest tenth of foot; others to nearest foot. Water levels preceded by plus (+) are above land surface.

Use: A, agricultural; C, commercial; H, residential; I, industrial; M, municipal or community; O, other; U, use discontinued or well unsuccessful; b, boiler feed; c, cooling; d, domestic; i, irrigation; l, livestock; p, processing; s, sanitary and service.

Remarks: Most data reported, except temperature measurements; gpd, gallons per day; gpm, gallons per minute; ppm, parts per million; (a), chemical analysis in table 5; (b), log in table 9, part 1.

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 1	9L, 8.5S, 0.4E	Geneva	Geneva Milk Co.	1927	520	Drl	160	150	6	150	Onondaga limestone	39	60	U	Well unused because water contains hydrogen sulfide.
Ot 2	9L, 8.3S, 0.8E	do.	Geneva Refrigerating Corp.	1947	500	Drl	147	105	8	115	do.	10	130	Cc	Water contains hydrogen sulfide.
Ot 3	9L, 8.5S, 1.5E	do.	A. J. Tarr Milk Co.	1933±	460	Drl	135	135	6	--	Pleistocene sand and gravel	10	7	Icp	(a) (b). Water contains hydrogen sulfide.
Ot 4	9L, 8.5S, 1.1E	1 mi N. of Geneva	J. Brigandi	1937	460	Drl	79	79	6	--	do.	flows	60	CH	(b).
Ot 5	9L, 7.1S, 1.1E	2 mi N. of Geneva	Dominick Acquilano	1936	460	Drl	86	86	6	--	Pleistocene deposits	+6	6	H	
Ot 6	9L, 6.4S, 1.3E	2½ mi N. of Geneva	R. E. McClure	1931	480	Drl	180	--	6	--	Salina group	35	--	U	
Ot 9	9L, 5.8S, 0.2E	3½ mi N. of Geneva	H. Skuse	1943	490	Drl	30	--	6	17	Onondaga limestone	27	10	Al	(b).
Ot 11	9L, 4.6S, 0.7E	4½ mi N. of Geneva	G. Yancey	1945	480	Drl	60	60	6	--	Pleistocene sand and gravel	35	8	H	(b).
Ot 12	9L, 4.6S, 1.2E	do.	George Drooby	1945	490	Drl	153	153	6	141	Salina group	16	50	H	(b).
Ot 13	9L, 5.5S, 1.1E	3½ mi N. of Geneva	J. O'Brien	1944±	470	Drl	141	140	6	--	Pleistocene sand	20	50	H	(b). Water has relatively high iron content.
Ot 19	9L, 3.6S, 0.5E	5½ mi N. of Geneva	Ontario Sand & Gravel Co., Inc.	1941±	450	Drl	50	50	6	--	Pleistocene sand and gravel	15	60	Is	
Ot 20	9K, 3.2S, 12.1E	2½ mi E. of Phelps	Bernard DeRuyter	1947	480	Drl	93	81	6	80	Salina group	56	50	Adl	(b).
Ot 22	9K, 6.3S, 12.0E	3 mi NW. of Geneva	H. B. Abbott	1945	560	Drl	49	49	6	--	Pleistocene sand and gravel	20	60	Adl	
Ot 23	9K, 5.7S, 11.2E	3 mi SE. of Phelps	W. Parish	1945	610	Drl	47	30	6	30	Onondaga limestone	6	30	Adl	Water contains hydrogen sulfide.
Ot 25	9L, 2.3S, 1.2E	6½ mi N. of Geneva	Elmer S. Peck	1900	520	Drl	95	95	6	--	Pleistocene sand and gravel	20	50	Al	Water contains hydrogen sulfide. Temp 48°F, 7/26/47.
Ot 26	9L, 1.9S, 1.1E	7 mi N. of Geneva	Howard Steele	--	490	Dug	32	32	36	--	do.	24	--	H	Temp 50°F, 7/26/47.
Ot 27	9L, 1.6S, 1.5E	7½ mi N. of Geneva	T. Wadhams	--	520	Dug	27	27	36	--	do.	20	6	Adl	
Ot 28	9L, 1.2S, 0.7E	do.	L. Overslaugh	--	440	Drl	55±	55	6	--	do.	30	5	Adl	
Ot 29	9L, 1.2S, 1.1E	do.	A. Wickham	--	480	Dug	55	55	36	--	do.	49	10	Adl	
Ot 30	9L, 0.7S, 1.5E	8½ mi N. of Geneva	C. Benge	--	460	Dug	17	17	36	--	Pleistocene deposits	12.2 7/28/47	--	H	Temp 50°F, 7/28/47.
Ot 31	9L, 0.4S, 1.1E	do.	Adrian Raymer	--	460	Dug	30	30	36	--	do.	20	--	H	Temp 56°F, 7/28/47.
Ot 34	9L, 2.9S, 0.4E	6 mi N. of Geneva	C. West	1940	460	Dug	14	14	36	--	Pleistocene sand	10	10	Al	
Ot 35	9K, 9.8S, 12.2E	1 3/4 mi SW. of Geneva	Frank Klug	1945	700	Drl	55	52	6	--	Pleistocene sand and gravel	12	30	H	

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 36	9K, 9.8S, 11.4E	2½ mi WNW. of Geneva	P. Bulanda	1945	730	Drl	105	100	6	--	Pleistocene sand and gravel	10	32	Al	
Ot 37	9K, 9.5S, 10.6E	3½ mi W. of Geneva	Vance Serba	1945	780	Drl	160	80	6	78	Skaneateles shale	73	½	H	
Ot 38	9K, 10.7S, 11.8E	2½ mi SW. of Geneva	Charles Butcher	1945	745	Drl	41	41	6	--	Pleistocene sand and gravel	15	2	H	
Ot 39	9K, 9.7S, 5.1E	7 mi E. Canandaigua	Luther Smith	1947	860	Drl	145	53	6	50	Ludlowville shale	11	1½	--	Water is salty.
Ot 40	9K, 10.6S, 4.3E	6½ mi ESE. of Canandaigua	John Birdsey	1946	920	Drl	72	24	6	20	Moscow shale	16	5	H	Water contains hydrogen sulfide.
Ot 42	9K, 10.7S, 4.3E	do.	James Van Houte	1917±	920	Drl	175	20	6	18	Ludlowville shale	40	15	Adl	Well yielded flammable gas at 90 ft.
Ot 43	9K, 11.3S, 4.6E	7 mi ESE. of Canandaigua	Deane Lightfoot	1946	910	Drl	261	10	6	6	Skaneateles shale	12	½	--	
Ot 44	9L, 10.2S, 0.4E	1 mi S. of Geneva	Floyd Rohner	1945	550	Drl	43	43	6	--	Pleistocene sand and gravel	8	20	H	Temp 50°F, 7/30/47.
Ot 47	9L, 0.5N, 0.9E	9½ mi N. of Geneva	George Sheppard	1905	460	Drl	140	45	6	40	Salina group	30	6	Al	
Ot 48	9L, 2.3S, 0.1W	3 mi ENE. of Phelps	Sayre MacLeod	1936	520	Drl	113	113	6	--	Pleistocene sand	--	5	H	
Ot 55	9L, 9.0S, 0.7E	Geneva	Bell Telephone Co.	--	480	Drl	30	30	6	--	Pleistocene sand and gravel	--	15	--	(b). Owners well No. 4. Six other test wells on property.
Ot 58	9K, 3.4S, 11.3E	1½ mi E. of Phelps	R. Bump	1947	470	Drl	65	47	6	46	Salina group	35	4	H	
Ot 63	9K, 2.8S, 9.2E	Phelps	Empire State Pickling Co.	1927	540	Drl	225	12	8	5	Onondaga limestone and Cobleskill dolomite	20	100	I	Used for disposal of industrial waste.
Ot 68	9K, 0.6S, 8.7E	2½ mi NW. of Phelps	F. C. Ridley	--	560	Dug	22	22	36	--	Pleistocene sand and gravel	3	--	H	
Ot 71	9K, 1.4S, 8.7E	2 mi NW. of Phelps	H. Fagner	1924	490	Drl	43	43	6	--	Pleistocene till	--	--	H	Temp 54°F, 11/2/47.
Ot 73	9K, 1.0S, 11.9E	3 mi NE. of Phelps	John Tollee	--	540	Dug	23±	23±	36	--	Pleistocene sand and gravel	flows	--	Adl	
Ot 75	9L, 1.1S, 0.3E	3½ mi NE. of Phelps	Serfaas S. DeWind	1947	480	Drl	198	100	6	99	Camillus shale	40	½	H	
Ot 77	9K, 4.6S, 12.0E	3 mi SE. of Phelps	Albert Oaks	1947	500	Drl	60	49	6	5	Onondaga limestone and Cobleskill dolomite	20	25	H	
Ot 82	9K, 5.4S, 11.3E	do.	Arthur Day	--	580	Dug	14	14	36	--	Pleistocene sand and gravel	2.3 11/4/47	--	Adl	Temp 52°F, 11/4/47.
Ot 84	9K, 4.8S, 10.2E	2 mi S. of Phelps	Ludvik Podest	1910	630	Drl	60	37	6	35	Onondaga limestone	30	--	Al	Water contains hydrogen sulfide.
Ot 85	9K, 4.1S, 9.9E	1 mi S. of Phelps	R. J. Conners	1947	620	Drl	80	25	6	25	do.	15	2	Al	
Ot 87	9K, 3.7S, 9.8E	3/4 mi S. of Phelps	Floyd Conne	1930	580	Drl	80	--	6	0	Onondaga limestone and Cobleskill dolomite	10	--	Adl	
Ot 89	9K, 2.7S, 11.5E	2 mi ENE. of Phelps	H. Corneles	--	540	Dug	55	55	36	--	Pleistocene sand and gravel	50	--	H	
Ot 90	9K, 2.0S, 11.4E	2 mi NE. of Phelps	C. Pollot	--	530	Dug	25±	25	36	--	do.	21	--	H	
Ot 92	9K, 2.7S, 7.2E	2½ mi W. of Phelps	Peter Schroo	--	610	Dug	30	30	36	--	do.	6	--	Adl	
Ot 93	9K, 2.6S, 6.7E	1 mi E. of Clifton Springs	A. Bankert	1947	630	Drl	54	13	6	12	Onondaga limestone	45	--	Al	

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 94	9K, 2.1S, 6.6E	1 mi NE. of Clifton Springs	Everson Dairy	--	560	Dug	16	16	24	--	Pleistocene sand and gravel	8	80	AC	(a). Temp 52°F, 11/5/47.
Ot 95	9K, 3.7S, 5.5E	1 mi S. of Clifton Springs	Roy Williams	1946	680	Drl	38	10	6	--	Onondaga limestone	24	--	H	Located 150 ft from Ot 96. Water contains hydrogen sulfide.
Ot 96	9K, 3.7S, 5.5E	do.	do.	--	680	Dug	12	12	36	--	Pleistocene till	6	--	H	Water does not contain hydrogen sulfide.
Ot 99	9K, 1.7S, 7.7E	2½ mi NW. of Phelps	George Rector	1929	560	Drl	75	7	6	6	Salina group	34	20	Adl	Supplies 2 homes and 100 livestock.
Ot 100	9K, 1.1S, 5.9E	1½ mi N. of Clifton Springs	Simeon Hughes	1947	540	Drl	39	33	6	32	Bertie limestone	30	6	H	
Ot 101	9K, 0.3S, 5.5E	2¼ mi N. of Clifton Springs	Albert Reed	1928	580	Drl	65	60	6	--	Pleistocene sand and gravel	31	16	H	Temp 50°F, 11/6/47.
Ot 103	9K, 0.6S, 4.7E	2¼ mi NW. of Clifton Springs	H. M. Bedette	--	590	Dug	21	22	30	--	Pleistocene till	17.1 11/6/49	--	H	Temp 52°F, 11/6/47.
Ot 105	9K, 1.4S, 4.2E	2 mi NW. of Clifton Springs	Philip Swartele	--	560	Dug	28	--	36	--	Pleistocene deposits	22	6	Adl	
Ot 106	9K, 2.0S, 5.5E	½ mi N. of Clifton Springs	E. Grimes	--	550	Dug	16	16	36	--	Pleistocene sand and gravel	5	10	H	
Ot 108	9K, 1.9S, 3.6E	2¼ mi NW. of Clifton Springs	T. Page	1944	550	Drl	24	20	6	--	do.	--	75	H	(a). Water believed to enter well at contact between gravel and bedrock.
Ot 109	9K, 1.6S, 3.6E	2½ mi NW. of Clifton Springs	Edward White	--	540	Drl	20	13	6	13	Camillus shale	3	--	U	(a).
Ot 110	9K, 0.3S, 3.5E	3¼ mi NW. of Clifton Springs	Paul Finewood	--	580	Dug	15	15	36	15	Pleistocene till	9	--	--	
Ot 111	9K, 0.7N, 3.8E	4 mi NNW. of Clifton Springs	Roger Norton	1945	580	Drl	59	40	6	40	Pleistocene sand and gravel	45	12	H	
Ot 113	9K, 1.7N, 4.3E	1 mi SW. of Port Gibson	James Baldree	1947	520	Drl	31	28	6	27	Camillus shale	8	6	H	Temp 51°F, 11/7/47.
Ot 114	9K, 2.4N, 8.0W	Port Gibson	H. Goellner	1946	480	Drl	168	168	6	--	Pleistocene sand and gravel	--	--	U	(b). Water reported to have salty taste.
Ot 116	9K, 1.4N, 5.0E	1 mi S. of Port Gibson	A. Burgess	--	540	Dug	12	12	36	--	do.	--	--	H	
Ot 117	9K, 0.5N, 6.2E	3 mi N. of Clifton Springs	I. DeCook	1943	580	Drl	140	48	6	47	Camillus shale	50	1	H	Water contains hydrogen sulfide. Yield not adequate for farm supplies.
Ot 122	9K, 1.7N, 2.9E	2 mi SW. of Port Gibson	M. DeMay	--	530	Drl	50	37	6	36	do.	20	18	Al	Supplies 35 livestock.
Ot 125	9K, 1.3N, 0.4E	3½ mi N. of Manchester	Francis Metal Products Corp.	1946	560	Drl	30	30	6	--	Pleistocene sand and gravel	5	½	Is	
Ot 128	9K, 0.5N, 1.3E	2½ mi N. of Manchester	Church of Jesus Christ of Latter Day Saints	1939	580	Drl	68	68	6	--	do.	10	--	C	Has been pumped continuously for 48 hrs.
Ot 131	9K, 1.0S, 0.6E	1 mi N. of Manchester	Harry Dunk	--	580	Dug	28	28	36	--	Pleistocene deposits	14.7 11/10/47	--	H	Temp 51°F, 11/10/47.
Ot 132	9K, 0.2S, 1.2E	2 mi N. of Manchester	R. H. Wood	1927	600	Drl	60	60	6	--	do.	28	--	H	
Ot 133	9K, 1.0N, 2.1E	3¼ mi NNE. of Manchester	Maynard DeMay	--	580	Dug	36	36	36	--	Pleistocene sand and gravel	10.1 11/10/47	--	Adl	
Ot 134	9K, 0.7S, 2.2E	1 1/3 mi NE. of Manchester	Richard Kinsey	--	600	Dug	22	22	36	--	Pleistocene till	10	--	H	Temp 54°F, 11/10/47.
Ot 137	9L, 0.1N, 2.5E	2½ mi NE. of Manchester	F. L. Gilfus	--	580	Dug	45	45	36	--	Pleistocene deposits	44	--	H	Goes dry in dry seasons.

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 140	9K, 6.9S, 12.2E	2½ mi NW. of Geneva	Myron Van Sickle	1936	580	Drl	66	27	6	21	Onondaga limestone	12	11	Adl	Well yielded 3 gpm when 40 ft deep.
Ot 141	9K, 7.2S, 12.2E	2 mi NW. of Geneva	John Holleran	1911	580	Drl	62	--	6	--	--	22	6	Al	Water turbid and contains hydrogen sulfide.
Ot 142	9K, 8.1S, 12.2E	1 3/4 mi NW. of Geneva	L. K. Van Gorden	--	610	Dug	12	12	36	--	Pleistocene sand and gravel	6	--	H	
Ot 143	9K, 9.3S, 12.2E	1½ mi W. of Geneva	Roy Bixler	1947	720	Drl	134	65	6	55	Skaneateles and Marcellus shales	flows	5	H	
Ot 144	9K, 9.8S, 12.2E	1 3/4 mi SW. of Geneva	Frank Johnson	1947	700	Drl	66	66	6	--	Pleistocene sand and gravel	30	10	H	
Ot 146	9K, 9.4S, 10.4E	3½ mi W. of Geneva	Empire State Pickling Co.	1947	790	Drl	213	192	6	190	Skaneateles shale	100	--	I	(b). Used for disposal of industrial waste. Gravel at depth of 70 ft yielded 15 gpm.
Ot 147	9K, 9.5S, 10.2E	do.	do.	1929	790	Drl	240	187	6	185	Ludlowville and Skaneateles shales	190	10	Is	Located 950 ft SW. of Ot 146.
Ot 148	9K, 9.5S, 10.2E	do.	do.	1946	790	Drl	120	120	6	--	Pleistocene sand	--	15	Is	Located 900 ft SW. of Ot 146.
Ot 149	9K, 9.7S, 9.3E	4 mi W. of Geneva	W. R. Lightfoote	--	820	Dug	13½	13½	36	--	Pleistocene till	6	--	Adl	
Ot 151	9K, 9.8S, 7.8E	6 mi W. of Geneva	R. Norris	1947	870	Drl	140	27	6	27	Ludlowville and Skaneateles shales	40	7	Adl	(b). Water contains hydrogen sulfide.
Ot 152	9K, 2.6S, 8.8E	Phelps	Seneca Kraut and Pickling Co.	1931	565	Drl	137	10	6	5	Onondaga limestone and Cobleskill dolomite	60	150	O	Used for disposal of industrial waste. Flowed when 75 ft deep.
Ot 153	9K, 2.8S, 5.7E	Clifton Springs	Clifton Springs Sanitarium and Clinic	--	560	Drl	65	20	6	5	Camillus shale	flows	30	U	(a). Water unused because of high hydrogen sulfide content.
Ot 156	9K, 3.0S, 5.8E	do.	do.	1929	620	Drl	75	20	6	10	Onondaga limestone and Cobleskill dolomite	15	50	Cs	One of 4 wells supplying the sanitarium. Supplemental water is occasionally obtained from municipal supply.
Ot 160	9K, 3.0S, 2.2E	3/4 mi E. of Shortsville	Claude Johnson	1947	630	Drl	22	17	6	16	Onondaga limestone	10	3	H	
Ot 163	9K, 5.6S, 9.4E	3 mi S. of Phelps	Ivor Nelson	1946	720	Drl	68	67	6	--	Pleistocene till	--	--	H	
Ot 165	9K, 5.4S, 8.3E	do.	Robert Hooper	--	740	Dug	14	14	36	--	do.	8.1 11/15/47	--	H	
Ot 166	9K, 4.3S, 8.2E	2 mi SW. of Phelps	Leonard Toll	--	675	Dug	46	46	36	--	do.	30	--	H	Goes dry in dry seasons. Well bottomed in blue clay.
Ot 169	9K, 3.7S, 7.6E	do.	Charles Trimble	--	660	Drl	59	35	6	35	Onondaga limestone	--	--	Adl	Water contains hydrogen sulfide.
Ot 170	9K, 4.3S, 7.3E	2½ mi SW. of Phelps	R. Leland	1941	675	Drl	90	10	6	9	do.	60	--	H	Supply is inadequate. Water contains hydrogen sulfide.
Ot 171	9K, 5.2S, 7.2E	3½ mi SW. of Phelps	M. E. Alleman	--	800	Dug	7	7	60	--	Pleistocene sand	3	--	Adl	
Ot 172	9K, 5.7S, 7.2E	3 mi SE. of Clifton Springs	H. S. Cline	1947	830	Drl	110	90	6	90	Skaneateles shale	60	10	H	
Ot 173	9K, 5.1S, 5.4E	2½ mi S. of Clifton Springs	Elmer Compson	--	790	Dug	21	21	36	--	Pleistocene sand	16	--	Adl	
Ot 174	9K, 11.2S, 12.4E	2½ mi SW. of Geneva	George Baxter	--	740	Drl	186	160	6	160	Ludlowville shale	40	½	Al	
Ot 175	9K, 12.1S, 12.5E	3¼ mi SW. of Geneva	G. H. Brown	--	700	Dug	12	12	48	--	Pleistocene deposits	--	--	Adl	
Ot 176	9K, 13.1S, 12.5E	4 mi S. of Geneva	J. A. Jensen	--	700	Dug	42	42	36	--	do.	35	--	H	
Ot 177	9K, 13.8S, 12.5E	5 mi S. of Geneva	George Moore	1947	700	Drl	120	120	6	--	Pleistocene sand and gravel	10	20	Al	(a). (b).

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 178	9K, 12.9S, 10.4E	5 mi SW. of Geneva	A. L. Brawley	1947	850	Drl	85	57	6	57	Moscow shale	20	1	H	(b). Drilled inside dug well approximately 25 ft deep.
Ot 180	9K, 12.1S, 7.9E	6½ mi SW. of Geneva	Church (Hamlet of Stanley)	1947	890	Drl	70	16	6	16	do.	30	½	Cs	Water contains hydrogen sulfide.
Ot 181	9K, 12.2S, 7.3E	7 mi SW. of Geneva	Charles Campbell	1917	920	Drl	50	36	5 5/8	35	do.	20	10	H	Do.
Ot 182	9K, 7.7S, 7.8E	5 mi SW. of Phelps	T. Coonce	1947	760	Drl	155	77	6	67	Ludlowville and Skaneateles shales	10	1	U	Water contains suspended sediment.
Ot 183	9K, 15.1S, 5.7E	10 mi SW. of Geneva	Harry Catlin	1947	900	Drl	45	33	6	30	Genesee formation	20	5	Adl	Water contains hydrogen sulfide.
Ot 184	9J, 11.5S, 11.1E	3½ mi S. of Canandaigua	Marion Case	--	720	Drl	71	61	6	60	Ludlowville shale	flows	15	--	(b). Water contains hydrogen sulfide.
Ot 185	9K, 2.8S, 2.7E	1½ mi E. of Shortsville	H. Gibbs	1946	620	Drl	52	40	6	40	Onondaga limestone	--	8	Adl	(b). Drilled inside dug well 19 ft deep.
Ot 186	9K, 3.8S, 4.2E	3 mi E. of Shortsville	do.	1946	670	Drl	28	16	6	15	do.	10	25	Adl	(b).
Ot 187	9K, 3.8S, 4.8E	1½ mi SW. of Clifton Springs	H. Converse	1946	640	Drl	21	16	6	15	do.	9	8	Adl	
Ot 188	9K, 3.9S, 1.6E	1 mi S. of Shortsville	Mr. North	--	650	Drl	29	8	6	8	do.	9	5	Adl	(a) (b).
Ot 190	9K, 5.6S, 0.8E	3¼ mi NE. of Canandaigua	Richard West	1946	700	Drl	43	40	6	40	Skaneateles shale	8	1	H	Drilled inside dug well 19 ft deep. Water contains hydrogen sulfide.
Ot 194	9K, 8.8S, 0.4E	2 mi SE. of Canandaigua	John Ferguson	1946	720	Drl	28	28	6	--	Pleistocene sand and gravel	18	2	H	(b).
Ot 196	9K, 9.2S, 7.6E	5½ mi W. of Geneva	Raymond Rath	1945	840	Drl	185	65	6	64	Ludlowville and Skaneateles shales	30	4	Adl	Water reported to be salty.
Ot 199	9K, 8.4S, 7.7E	6 mi W. of Geneva	E. F. Guggenheimer	1946	800	Drl	110	43	6	43	do.	20	16	H	
Ot 200	9K, 7.4S, 7.3E	6½ mi W. of Geneva	Bloch & Guggenheimer, Inc.	--	790	Drl	25±	24	36	--	Pleistocene till	6	5	Is	Water used by canning factory. Several attempts to obtain water from drilled wells have been unsuccessful. Supplemental water is transported in tanks from Orleans.
Ot 203	9K, 7.9S, 8.7E	5 mi NW. of Geneva	Soper Brothers	1933	780	Drl	285	30	6	30	Skaneateles and Marcellus shales and Onondaga limestone	5	25	Al	(a). Well has been pumped at 25 gpm for 5 hrs. Supplies 60 livestock.
Ot 204	9K, 7.9S, 9.2E	4½ mi W. of Geneva	George Jones	1916	760	Drl	69	22	6	17	Skaneateles shale	15	25	Adl	Supplies 2 homes and 30 livestock. Water contains hydrogen sulfide.
Ot 208	9K, 12.0S, 8.1E	6½ mi SW. of Geneva	Seneca Stanley Branch School	1933	880	Drl	280	20	6	18	Moscow and Ludlowville shales	--	--	Cs	Supplies 80 pupils.
Ot 211	9K, 13.8S, 10.3E	6 mi SW. of Geneva	Gage Robson	1944	880	Drl	42	31	6	30	Moscow shale	10	20	Adl	
Ot 212	9K, 13.8S, 8.8E	7 mi SW. of Geneva	Libby McNeill & Libby	1923+	920	Drl	32	32	30	32	Pleistocene sand	8	45	Ips	Well bottoms on bedrock. Has been pumped at 45 gpm for 24 hrs. Supply is not adequate.
Ot 215	9K, 7.8S, 1.1E	2½ mi E. of Canandaigua	J. J. Morgan	--	760	Dug	25	25	36	--	do.	20	5	H	(a).
Ot 216	9K, 6.9S, 1.1E	2½ mi NE. of Canandaigua	Donald Howard	1940±	740	Drl	70	50	6	20	Skaneateles shale	--	--	Cs	(a). Supplies farm implement agency.
Ot 217	9K, 6.8S, 2.6E	4½ mi E. of Canandaigua	James Hunt	--	820	Drl	160	70	6	70	Skaneateles and Marcellus shales	30	3	Al	Supplies 35 livestock. A dug well 28 ft deep and 50 ft from this well supplies farmhouse.
Ot 219	9K, 6.9S, 3.3E	5 mi E. of Canandaigua	Harry Reed	1945	820	Drl	57	22	6	20	Skaneateles shale	4	2	U	(a). Well unused because it produced "black sulfur water". Dark color probably caused by presence of iron sulfide or manganese sulfide. Water contains hydrogen sulfide.

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 220	9K, 2.4S, 1.2E	3/4 mi S. of Shortsville	Village of Shortsville Well no. 1	--	620	Drl	107	--	6	--	Onondaga limestone, Cobleskill dolomite, and Bertie limestone	--	150	UM	(a). Well abandoned in 1935 because of hydrogen sulfide content and hardness. Has been pumped at 150 gpm for 6 hrs.
Ot 221	9K, 2.4S, 1.2E	do.	Village of Shortsville Well no. 4	--	620	Drl	88	16	8	15	Onondaga limestone	23	110	M	(a). Together with Ot 222 and Ot 223 supplies 200,000 gpd to Village of Shortsville. Water contains hydrogen sulfide.
Ot 222	9K, 2.4S, 1.2E	do.	Village of Shortsville Well no. 3	--	620	Drl	70	16	8	15	do.	9	100	M	(a) (b). Temp 52°F, 8/19/52.
Ot 223	9K, 2.4S, 1.2E	do.	Village of Shortsville Well no. 2	--	620	Drl	82	20	8	20	Pleistocene sand and gravel and Onondaga limestone	121	90	M	(a) (b). Casing slotted between depths of 15 and 18 ft. Temp 49°F, 12/11/47.
Ot 224	9J, 2.3S, 12.9E	1 mi W. of Manchester	Village of Manchester	1916	600	Dug	15	15	420	--	Pleistocene sand and gravel	7.6 12/11/47	300	M	(a). Supplies 95,000 - 175,000 gpd. Was found to be inadequate during drought of 1949. Wells Ot 840 and Ot 841 were drilled nearby to supplement the supply.
Ot 226	9K, 5.3S, 2.1E	2½ mi SE. of Shortsville	Philip Myers	1943	720	Drl	65	63	6	--	Pleistocene deposits	22	3	Al	Supplies 20 livestock.
Ot 229	9K, 5.4S, 3.2E	3 mi SE. of Shortsville	George Cole	1945	770	Drl	41	41	6	--	Pleistocene sand and gravel	15	20	Adl	Water contains hydrogen sulfide.
Ot 231	9K, 5.3S, 4.3E	4 mi SE. of Shortsville	Judson Archer	1913	780	Drl	75	65	6	65	Skaneateles shale	20	8	H	Do.
Ot 232	9J, 13.7S, 10.0E	6 mi S. of Canandaigua	L. A. Evans	--	720	Drl	59	9	6	9	Moscow and Ludlowville shales	10	1	U	Material overlying bedrock consists of blue clay and shale fragments.
Ot 233	9J, 15.2S, 9.2E	4 mi SE. of Bristol Center	F. H. Bedford	1947	700	Drl	63	15	6	15	Moscow shale	17	4	H	Material overlying bedrock consists of blue clay.
Ot 234	9J, 16.3S, 10.2E	4½ mi SE. of Bristol Center	Clifford Middlebrook	1947	1,080	Drl	87	65	6	62	Sonyea formation	30	15	Adl	Supplies farmhouse and 57 livestock.
Ot 235	9J, 12.3S, 8.6E	3½ mi NE. of Bristol Center	S. Stinardo	--	1,020	Drl	26	17	6	15	Genesee formation	6	4	H	(a) (b). Water contains hydrogen sulfide.
Ot 237	9J, 13.0S, 6.3E	3/4 mi E. of Bristol Center	4H Club (Camp Letchworth)	1936	1,300	Drl	104	29	6	29	Sonyea formation	40	15	M	Supplies up to 100 campers.
Ot 238	9J, 6.8S, 10.4E	City of Canandaigua	Mrs. Donald Marks	1947	800	Drl	124	31	6	30	Ludlowville and Skaneateles shales	20	3	U	Well yielded flammable gas when drilled.
Ot 243	9J, 2.1S, 6.2E	1 3/4 mi SE. of Victor	Charles Lentine	1947	640	Drl	40	33	6	33	Onondaga limestone	15	3	H	
Ot 244	9J, 1.5S, 5.7E	1 mi E. of Victor	Orin Pittenger	1946	560	Drl	20	17	6	16	Salina group	4	5	H	
Ot 245	9J, 5.6S, 12.1E	2 mi NE. of Canandaigua	A. Andrews	1920	720	Drl	38	38	6	--	Pleistocene sand and gravel	16	4	Al	Supplies 26 livestock.
Ot 246	9J, 6.7S, 12.1E	1 mi NE. of Canandaigua	R. Wheeler	1946	760	Drl	178	118	6	117	Skaneateles shale	20	1	H	(b).
Ot 248	9J, 11.2S, 12.4E	3½ mi SE. of Canandaigua	Joseph Reish	1946	700	Drl	67	34	6	32	Ludlowville shale	8	4	H	(b).
Ot 249	9J, 11.5S, 12.2E	4 mi SE. of Canandaigua	E. H. Pletsch	1946	700	Drl	156	156	6	--	Pleistocene deposits	20	16	H	(b).
Ot 250	9J, 12.2S, 12.2E	4½ mi SE. of Canandaigua	William Young	1946	700	Drl	94	94	6	--	do.	8	½	H	
Ot 251	9J, 12.6S, 12.2E	5 mi SE. of Canandaigua	R. Veak & L. Mumerow	1946	760	Drl	86	86	6	--	Pleistocene till	0	½	H	
Ot 252	9J, 13.9S, 11.6E	3 mi NW. of Rushville	A. Yegudkin	1947	700	Drl	61	49	6	47	Ludlowville shale	flows	16	H	Supplies four summer cottages. Water contains hydrogen sulfide.
Ot 253	9J, 15.2S, 10.5E	3½ mi NW. of Rushville	A. Night	1947	720	Drl	184	16	6	13	do.	57	1	H	
Ot 254	9J, 10.0S, 10.5E	2½ mi S. of Canandaigua	Charles Hinton	1948	800	Drl	125	--	6	25	do.	25	2	H	Temp 48°F, 5/19/48.

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 255	9J, 9.2S, 10.5E	1½ mi SW. of Canandaigua	P. P. Rung	--	880	Dug	14	14	26	14	Pleistocene till	2	--	H	Well bottoms on bedrock.
Ot 259	9J, 11.8S, 9.8E	4½ mi SW. of Canandaigua	Martin Wyffels	--	970	Dug	12	12	36	--	Pleistocene deposits	flows	12	Al	
Ot 263	9J, 13.2S, 10.3E	5½ mi S. of Canandaigua	George St. Angelo	1944	870	Drl	192	11	6	6	Moscow and Ludlowville shales	--	15	Adl	(a). Water has relatively high iron content. Supplies poultry farm.
Ot 264	9J, 12.3S, 8.7E	5 mi SW. of Canandaigua	Cheshire Union School	--	1,040	Dug	9.8	10	30	--	Pleistocene sand and gravel	2.8 5/20/48	--	Cs	Supplies 85 pupils. Temp 50°F, 5/20/48.
Ot 266	9J, 9.6S, 8.6E	3 mi SW. of Canandaigua	C. Miller	1946	1,060	Drl	165	150	6	150	Moscow shale	60	2	Al	
Ot 267	9J, 10.7S, 9.3E	3½ mi SW. of Canandigua	Albert Hicks	1945	1,010	Drl	45	45	6	--	Pleistocene sand and gravel	2	5	H	Water has relatively high iron content. Temp 48°F, 5/20/48.
Ot 268	9J, 13.4S, 8.3E	2 3/4 mi E. of Bristol Center	Harry Thompson	1923	1,160	Drl	90	17	6	17	Sonyea formation	18	10	Al	
Ot 272	9J, 15.2S, 7.7E	3 mi SE. of Bristol Center	S. A. Burd	--	1,380	Dug	27	27	30	--	Pleistocene till	12.2 5/21/48	--	H	
Ot 273	10J, 0.1S, 7.0E	3 mi N. of Bristol Springs	G. Sisto	1948	1,180	Drl	61	61	6	--	Pleistocene sand and gravel	18	10	Adl	
Ot 275	9J, 14.0S, 7.8E	2½ mi SE. of Bristol Center	P. Marvin	1948	1,360	Drl	95	72	6	72	Sonyea formation	25	2	H	(a). Drilled inside dug well 26 ft deep.
Ot 276	9J, 13.0S, 7.2E	1 3/4 mi E. of Bristol Center	John Pata	1948	1,340	Drl	90	21	6	21	do.	20	3	Adl	Drilled inside dug well 20 ft deep.
Ot 277	9J, 12.5S, 8.6E	3½ mi NE. of Bristol Center	C. Harrington	1948	1,000	Drl	93	48	6	48	Genesee formation	10	2	H	
Ot 278	9J, 13.7S, 8.7E	3½ mi SE. of Bristol Center	J. R. Conde	1946	1,040	Drl	190	80	6	80	do.	50	1	H	Temp 50°F, 5/22/48.
Ot 280	10J, 4.5S, 6.2E	1½ mi S. of Bristol Springs	Miss Haggett	1935	1,360	Drl	98	98	6	38	West Falls formation (Hatch shale member)	30	3	H	
Ot 282	9J, 8.5S, 10.1E	1¼ mi SW. of Canandaigua	D. Mullin	1937	860	Drl	47	47	6	--	Pleistocene sand and gravel	--	--	H	Supply inadequate.
Ot 285	9J, 8.8S, 8.6E	3 mi SW. of Canandaigua	K. M. Holcomb	1937	1,000	Drl	150	97	6	97	Moscow and Ludlowville shales	5	--	Adl	(a).
Ot 287	9J, 12.8S, 5.4E	Bristol Center	E. F. Case	1936	920	Drl	60	55	6	52	Genesee formation	flows	6	UA	(a). Well produced "black sulfur water". (See remarks for well Ot 219.)
Ot 289	9J, 11.2S, 5.1E	2 mi N. of Bristol Center	E. D. Fales	1938	910	Drl	67	40	6	40	Moscow shale	15	18	H	
Ot 291	9J, 10.4S, 4.4E	3 mi NW. of Bristol Center	L. Bliss	--	1,010	Drl	31	27	6	20	Genesee formation	7	10	--	Well is used but produces "black sulfur water". (See remarks for well Ot 219.)
Ot 293	9J, 11.3S, 4.4E	2 mi NW. of Bristol Center	W. A. Symonds	1942	900	Drl	97	48	6	47	Moscow shale	20	1	H	Drilled inside dug well 17 ft deep.
Ot 295	9J, 12.5S, 4.0E	1½ mi NW. of Bristol Center	W. E. Powell	--	1,160	Drl	190+	20	6	20	Sonyea and Genesee formations	60	2	H	
Ot 298	9J, 14.3S, 5.4E	1½ mi S. of Bristol Center	K. C. Tietgen	1947	940	Drl	74	74	6	--	Pleistocene sand and gravel	34	12	H	
Ot 299	9K, 9.4S, 1.7E	3 mi SE. of Canandaigua	Reed's Restaurant	1937	900	Drl	40	12	6	12	Ludlowville shale	10	3	Csp	Supplies restaurant.
Ot 300	9J, 9.0S, 12.8E	2 mi SE. of Canandaigua	Kenneth Smith	1948	700	Drl	35	34	6	--	Pleistocene sand and gravel	12	30	Cs	(b). Supplies home and 10 cabins.
Ot 301	9J, 6.3S, 10.2E	1½ mi NW. of Canandaigua	Willard Clapper	1937	780	Drl	19	19	6	--	do.	5	2	Cs	(b). Supplies gas station. Temp 50°F, 5/25/48.

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 303	9J, 3.1S, 12.3E	1 3/4 mi W. of Shortsville	Joseph Pulling	1897	640	Dug	21	21	30	--	Pleistocene sand and gravel	4	--	Adl	
Ot 304	9J, 1.2S, 10.3E	4½ mi NW. of Shortsville	N. Clark	1936	600	Drl	30	--	6	18	Bertie limestone	8.1 5/25/48	6	Adi	Supplies irrigation for 15 acres of cabbage plants. Drilled inside dug well 16 ft deep. Temp 50°F, 5/25/48.
Ot 307	9J, 1.8S, 12.5E	2 mi NW. of Shortsville	L. J. Brophy	1947	580	Drl	35	8½	6	7	Salina group	14	3	Ald	(b).
Ot 308	9K, 1.6S, 5.4E	1 mi N. of Clifton Springs	George Mallory	1947	540	Drl	40	35	6	34	Bertie limestone	20	5	H	
Ot 311	9K, 0.9S, 9.8E	2 mi N. of Phelps	B. L. Willson	1947	540	Drl	39	39	6	--	Pleistocene sand and gravel	18	10	H	
Ot 312	9K, 0.3S, 9.8E	2½ mi N. of Phelps	W. M. Vandermill	1948	550	Drl	50	42	6	42	Camillus shale	25	5	Al	(b).
Ot 314	9K, 7.8S, 1.8E	3½ mi E. of Canandaigua	Ontario County Home	1941	820	Drl	30	30	6	--	Pleistocene sand and gravel	18	10	M	(a). Well has been pumped at 30 gpm for 5 hrs. Supplies 140 people. Temp 50°F, 5/26/48.
Ot 315	9K, 6.8S, 2.1E	3½ mi NE. of Canandaigua	E. Howard	1935	720	Drl	150	96	6 to 4¼	--	Skaneateles shale	--	--	H	
Ot 318	9J, 1.7S, 7.5E	7 mi NW. of Canandaigua	Hunt & Hunt Fruit Stand	1936	620	Drl	30	28	6	28	Cobleskill dolomite	15	4	Cs	(b). Water contains hydrogen sulfide. Temp 50°F, 5/27/48.
Ot 319	9J, 6.8S, 12.6E	1 3/4 mi NE. of Canandaigua	J. Smith	1923	700	Drl	65.8	66	6	--	Pleistocene sand and gravel	25	2	H	
Ot 320	9J, 1.1S, 5.3E	½ mi E. of Victor	Thomas Lynaugh	1936	680	Drl	56	56	6	--	do.	50	2	Al	Two other wells, 1 drilled and 1 dug, on same property.
Ot 323	9J, 1.8S, 3.6E	1 mi SW. of Victor	William McMahon	1935	660	Drl	159	127	6	127	Cobleskill dolomite	20	4	Adl	
Ot 324	9J, 10.1S, 10.8E	2½ mi S. of Canandaigua	H. D. Miller	1948	770	Drl	113	113	6	--	Pleistocene sand and gravel	+7	25	H	(b).
Ot 325	9J, 4.4S, 8.9E	4 mi NW. of Canandaigua	L. R. Pritchard	1932	740	Drl	53	43	6	43	Skaneateles and Marcellus shales	15	--	Adl	Drilled inside dug well 23 ft deep.
Ot 326	9J, 4.8S, 8.4E	4 mi NW. of Canandaigua	C. Purdy	1940	740	Drl	124	61	6	60	Skaneateles shale	90	7	Adl	Together with a dug well 35 ft deep supplies 240 livestock. Yields some flammable gas. Temp 48°F, 5/28/48.
Ot 331	9J, 4.6S, 11.5E	3 mi N. of Canandaigua	R. R. Purdy	1946	720	Drl	68	58	6	58	Marcellus shale	14	1	H	
Ot 332	9J, 3.8S, 10.8E	4 mi N. of Canandaigua	L. Smith	1940	660	Drl	38	19	6	19	Onondaga limestone	10	5	Adl	(a). Supplies 50 livestock.
Ot 333	9J, 3.7S, 9.2E	4½ mi NW. of Canandaigua	Charles Uhl	--	680	Drl	37	37	6	--	Pleistocene sand and gravel	12	2	--	Drilled inside dug well 25 ft deep. Temp 50°F, 5/28/48.
Ot 335	9J, 5.8S, 4.2E	1 mi N. of Holcomb	Howard Burt	1948	900	Drl	77	77	6	--	do.	6.8 5/29/48	3	H	
Ot 337	9J, 3.7S, 5.6E	2½ mi SE. of Victor	Philip Calcagno	1938	740	Drl	80	77	6	76	Marcellus shale	56	--	Adl	Supplies 5 people and 30 livestock.
Ot 338	9J, 3.9S, 4.6E	3½ mi S. of Victor	J. Minehan	--	800	Dug	30	30	36	--	Pleistocene deposits	4.4 5/29/48	--	H	
Ot 340	9J, 2.8S, 4.6E	1½ mi S. of Victor	H. Green	--	820	Drl	122	120	6	120	Pleistocene deposits and Onondaga limestone	44	--	Adl	
Ot 343	9K, 10.1S, 0.6E	3½ mi SE. of Canandaigua	William Henry	1923	930	Drl	57	17	6	17	Ludlowville shale	10	4	Al	Well produces "black sulfur water". (See remarks for well Ot 219.)
Ot 344	9K, 11.1S, 1.5E	4½ mi SE. of Canandaigua	George Gage	--	930	Drl	50	--	6	--	Moscow shale	+1½	--	UA	Temp 51°F, 5/30/48.
Ot 345	9K, 11.2S, 1.7E	5 mi SE. of Canandaigua	do.	--	940	Dug	18	18	60	--	Pleistocene till	7	--	Adl	Temp 50°F, 5/30/48.

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 347	9K, 12.1S, 1.8E	5½ mi SE. of Canandaigua	James Dunigan	1945	1,040	Drl	55	15	6	15	Genesee formation	10	--	H	
Ot 350	9K, 11.3S, 2.0E	2 mi N. of Rushville	M. R. Bay	1948	1,100	Drl	164	30	6	30	Sonyea and Genesee formations	15	2	--	Well yields flammable gas and water contains hydrogen sulfide.
Ot 351	9K, 15.2S, 2.6E	2 mi NE. of Rushville	Donald Johncox	1945	960	Drl	185	116	6	116	Genesee formation	3	1	Al	Well yields flammable gas. Supplies 24 livestock.
Ot 353	9J, 16.0S, 10.4E	3½ mi W. of Rushville	E. C. Welch	1936	940	Drl	117	17	6	17	do.	24	3	H	Well yields flammable gas. Material overlying bedrock consists of clay and fragments of shale. Temp 50°F, 5/31/48.
Ot 354	9J, 15.5S, 10.3E	3½ mi W. of Rushville	H. Thompson	1936	700	Drl	36	17	6	15	Ludlowville shale	--	3	H	Layer of red clay 17 ft thick overlies bedrock.
Ot 355	9K, 7.5S, 2.0E	3½ mi E. of Canandaigua	C. S. Van Voorhis	1948	780	Drl	75	35	6	35	Skaneateles shale	--	1½	H	(b).
Ot 356	9K, 7.7S, 2.7E	4½ mi E. of Canandaigua	F. Van Troost	--	820	Dug	40	40	24 to 40	--	Pleistocene till	18.6 6/1/48	--	Adl	Supplies house and 20 livestock.
Ot 357	9K, 7.9S, 3.7E	5½ mi E. of Canandaigua	S. McMurray	--	820	Dug	32	32	36	--	do.	12	--	H	Temp 50°F, 6/1/48.
Ot 360	9K, 7.2S, 4.6E	5 mi S. of Clifton Springs	School No. 7	1935	900	Drl	156	96	6	95	Skaneateles shale	--	--	Cs	
Ot 363	9K, 6.8S, 5.3E	4½ mi S. of Clifton Springs	Linehan Brothers	--	880	Dug	44	44	36	--	Pleistocene till	29	--	Adl	Supplies house and 40 livestock.
Ot 365	9K, 6.0S, 6.7E	3½ mi S. of Clifton Springs	Glen Jensen	1942	820	Drl	84	68	6	66	Skaneateles shale	12	0.1	H	
Ot 366	9K, 6.0S, 6.7E	do.	Walter Jensen	1934	820	Drl	210	23	6	23	Skaneateles and Marcellus shales, and Onondaga limestone	--	1-	U	Well destroyed because of small yield. Another well on property used from 1920-1924 was 420 ft deep and yielded several gpm of water containing hydrogen sulfide.
Ot 367	9K, 6.4S, 6.7E	4 mi S. of Clifton Springs	T. B. Sheppard	--	800	Dug	26	26	24	--	Pleistocene deposits	5	--	Adl	Supplies farmhouse and 70 livestock. Temp 51°F, 6/2/48.
Ot 368	9K, 6.6S, 6.8E	5 mi S. of Clifton Springs	J. R. Maney & Bros.	1945	860	Drl	88	87½	6	87	do.	--	2	H	Well bottoms on bedrock.
Ot 370	9J, 2.8S, 8.0E	3½ mi SE. of Victor	E. Blazey	1944	680	Drl	31	17	6	17	Onondaga limestone	12	--	Adl	Drilled inside dug well 17 ft deep.
Ot 371	9J, 1.8S, 6.0E	1½ mi E. of Victor	William English	1948	560	Drl	18	18	6	2	Bertie limestone	9	4	H	(a). Temp 47°F, 6/2/48.
Ot 372	9J, 1.6S, 3.7E	1 mi W. of Victor	Karl Mortensen	1948	660	Drl	64	63	6	--	Pleistocene sand and gravel	49	20	H	
Ot 374	9J, 2.7S, 3.9E	1½ mi SW. of Victor	North Brothers	--	675	Drl	39	--	6	20	Onondaga limestone	24	--	Adl	(a).
Ot 375	9J, 3.7S, 3.2E	3 mi SW. of Victor	W. L. Murray	--	760	Drl	45	41	48 to 6	--	Pleistocene sand and gravel	14.1 6/3/48	9	Adl	Supplies house and 50 livestock.
Ot 378	9J, 4.7S, 0.8E	4 mi NW. of Holcomb	Pietro Madafferi	1946	920	Drl	190	190	6	--	do.	20	10	H	(a) (b). Drawdown 50 ft after producing 10 gpm for 1 hr.
Ot 380	9J, 4.7S, 0.7E	do.	H. G. Sanders	1939	900	Drl	206	201	8 to 6	--	do.	44	5	H	(b). Well has been pumped at 50 gpm for 24 hrs.
Ot 381	9K, 13.6S, 6.1E	Gorham	Grandview Dairy	1945	900	Drl	204	12	6	10	Moscow and Ludlowville shales	8	40	Ips	Well has been pumped at 40 gpm for 5 hrs. This well together with another well of same depth located at distance of 30 ft supplies 30,000 gpd.
Ot 382	9K, 13.5S, 6.2E	do.	Lohmann Foods Corp.	1944	900	Drl	71	39	6	39	Moscow shale	15	15	Ibp	From August to November supplies 40,000 gpd to canning factory.
Ot 385	9K, 15.4S, 6.0E	1½ mi S. of Gorham	S. W. Thomas	1933	1,010	Drl	126	26	6	25	Genesee formation	55	--	Adl	Water contains hydrogen sulfide. Supplies house and 55 livestock. Well Ot 1056 located on property.
Ot 387	9K, 15.5S, 6.4E	2 mi SE. of Gorham	Fred Frederickson	1942	1,040	Drl	102	23	6	22	do.	20	8	Adl	Well yielded flammable gas at depth of 40 ft. Supplies water to house and 40 livestock.
Ot 388	9K, 16.2S, 6.8E	2 3/4 mi SE. of Gorham	Loren Bender	1915	1,100	Drl	50	45	6	41	do.	0	30	Adl	Supplies 9 people and 40 livestock.

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 389	9K, 16.0S, 6.6E	2¼ mi S. of Gorham	Richard Townsend	--	1,080	Drl	39	20	6	--	Pleistocene sand and gravel	8	2	H	
Ot 392	9K, 15.6S, 7.3E	2½ mi SE. of Gorham	M. Sheppard	1944	1,040	Drl	132	--	6	3	Genesee formation	--	3/4	Al	Well yields flammable gas. Well Ot 393 and another dug well 25 ft deep are located on property. Well 25 ft deep goes dry in dry seasons.
Ot 393	9K, 15.3S, 7.2E	2 mi SE. of Gorham	M. Sheppard	--	1,040	Dug	27	27	36	--	Pleistocene till	10	--	Al	Supplies 20 livestock.
Ot 395	9K, 13.9S, 8.0E	2 mi E. of Gorham	Walter Robson	1935	940	Drl	125	35	6	32	Genesee formation, Tully limestone, and Moscow shale	8	3	Adl	A dug well 18 ft deep on property bottoms in silt or fine sand and goes dry in dry seasons.
Ot 396	9K, 15.1S, 8.5E	3 mi SE. of Gorham	C. Wilson	--	1,020	Drl	60	60	6	--	Pleistocene sand and gravel	12	6	Adl	Has been pumped at 6 gpm for 13 hrs. Another well of similar construction located 200 ft away.
Ot 397	10J, 6.7N, 1.7W	4½ mi N. of Honeoye	Fred Grundman	1899	860	Drl	85	--	6	--	do.	47.2 6/6/48	2	UA	Water contains hydrogen sulfide. Spring on property supplies drinking water. Well listed in U. S. Geol. Survey Water-Supply Paper 102 (well 228, p. 184) 1901.
Ot 398	10J, 10.7N, 2.0W	6½ mi W. of Holcomb	Town of W. Bloomfield Town Hall	1947	951	Drl	300	300	6	--	do.	100	2	M	Supplies Town Hall.
Ot 400	9K, 3.6S, 1.3E	½ mi S. of Shortsville	E. Brahm	1948	620	Drl	45	33	6	32	Onondaga limestone	11	20	H	(b). Water may be from a cavern filled with gravel.
Ot 402	9J, 14.5S, 7.4E	2½ mi SE. of Bristol Center	R. E. Frederickson	1944	1,500	Drl	85	30	6	30	West Falls formation (Hatch shale member)	--	4	H	
Ot 406	9K, 15.7S, 1.4E	1 mi NE. of Rushville	E. L. Moody	1904	960	Drl	45	41	6	40	Genesee formation	--	--	H	
Ot 414	9K, 16.0S, 2.2E	do.	Howard Gorton	1945	940	Drl	183	61	6	60	do.	14	½	H	Well yields flammable gas.
Ot 416	9K, 15.6S, 4.6E	2¼ mi SW. of Gorham	Clifford Smith	--	960	Dug	17	17	36	--	Pleistocene till	4.4 6/17/48	--	Adl	
Ot 417	9K, 14.8S, 4.8E	1½ mi SW. of Gorham	G. F. Gifford	--	960	Dug	15	15	30	--	do.	2.1 6/17/48	--	Al	Supplies 30 livestock. Temp 55°F, 6/17/48.
Ot 419	9K, 14.8S, 3.4E	3 mi NE. of Rushville	C. F. Stell	1948	980	Drl	72	72	6	--	Pleistocene sand and gravel	+2	6	Al	Supplies 40 livestock. Dug well on property also flows. Temp 52°F, 6/18/48.
Ot 420	9K, 14.6S, 3.9E	2 mi SW. of Gorham	A. D. Clark	--	1,040	Drl	80	--	6	--	--	6	--	Al	Temp 49°F, 6/18/48.
Ot 421	9K, 14.1S, 4.5E	1½ mi SW. of Gorham	Charles Jones	1940	1,020	Drl	77	--	6	--	--	18.9 6/18/48	--	Al	Supplies 20 livestock. Temp 50°F, 6/18/48.
Ot 422	9K, 13.9S, 5.2E	1 mi W. of Gorham	S. E. Bowersox	--	900	Dug	13	12.5	30	--	Pleistocene sand	5.0 6/18/48	--	Adl	Temp 50°F, 6/10/48.
Ot 426	9K, 13.0S, 8.2E	2½ mi NE. of Gorham	C. Nageldinger	--	960	Drl	111	--	6	--	Genesee formation, Tully limestone, and Moscow shale	6.9 6/18/48	--	Al	Drilled inside dug well. Temp 52°F, 6/18/48.
Ot 429	9K, 13.2S, 1.0E	3 mi N. of Rushville	J. M. Bay	--	980	Dug	30	30	36	--	Pleistocene till	9	--	Al	Supplies 20 livestock.
Ot 430	9K, 14.2S, 1.1E	2 mi N. of Rushville	Lorenzo Gage	--	1,050	Dug	20	20	36	--	do.	5	--	H	Temp 50°F, 6/19/48.
Ot 431	9K, 15.2S, 0.7E	1 mi NW. of Rushville	D. Green	--	1,080	Dug	20	20	36	--	do.	5	--	Al	Supplies 50 livestock.
Ot 434	9K, 10.5S, 1.8E	4½ mi SE. of Canandaigua	Floyd Gage	1944	960	Drl	58	18	6	17	Moscow and Ludlowville shales	15	20	Adl	
Ot 435	9K, 11.2S, 2.7E	5½ mi SE. of Canandaigua	John Ricker	1945	980	Drl	50	14	6	14	Moscow shale	3	5	H	
Ot 436	9K, 11.2S, 3.6E	6½ mi SE. of Canandaigua	O. D. Whyte	1912	980	Drl	62	8	6	7	do.	20	5	Adl	

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 437	9K, 11.6S, 3.3E	6½ mi SE. of Canandaigua	John Van Gelder	1945	980	Drl	32	22	6	21	Genesee formation	5	6	Adl	Water contains hydrogen sulfide. Well supplies 30 livestock.
Ot 439	9K, 12.2S, 4.1E	2½ mi NW. of Gorham	Allen Brothers	1942	1,000	Drl	128	22	6	20	Genesee formation, Tully limestone, and Moscow shale	20	--	Al	Supplies 21 livestock.
Ot 440	9K, 12.9S, 5.0E	1¼ mi NW. of Gorham	Lula Thomas	--	900	Dug	15	15	36	--	Pleistocene deposits	6.6 6/21/48	--	H	
Ot 441	9J, 0.5S, 11.3E	4 mi NW. of Shortsville	E. Van Castle	1937	600	Drl	200	11	10	10	Camillus shale	4	10	U	(b).
Ot 442	9K, 2.4N, 1.2E	5½ mi N. of Shortsville	William Finnerty	1948	540	Drl	175	90	6	84	do.	30	2	--	(a) (b). Drilled inside dug well 25 ft deep.
Ot 444	9K, 1.7N, 0.7E	5 mi N. of Shortsville	D. Pearsall	1944	540	Drl	50	45	6	--	Pleistocene sand and gravel	4	30	H	(b). Well has been pumped at 30 gpm for 6 hrs. Finished with 5 ft length of 4-inch screen. Another 6-inch well drilled on property bottomed on bedrock. At 72 ft, yielded 7 gpm, but was unused because water had bitter taste.
Ot 447	9J, 15.0S, 12.2E	2 mi NW. of Rushville	Fred Schlagerter	1936	960	Drl	240	54	6	53	Genesee formation, Tully limestone, and Moscow shale	30	½	Al	(b). Well yielded gas during drilling. Spring on same property also used.
Ot 448	9J, 15.6S, 12.1E	do.	Fred Wilson	1938	980	Drl	109	75	6	74	Genesee formation	30	20	H	
Ot 449	10J, 4.8S, 7.0E	5 mi NE. of Naples	Carl Widmer	1938	700	Drl	50	20	6	12	do.	1	8	H	
Ot 450	9J, 8.2S, 8.5E	2½ mi W. of Canandaigua	W. H. Winne	1948	960	Drl	125	75	6	74	Ludlowville shale	35	1	Al	Used only in dry seasons.
Ot 451	9J, 8.0S, 7.1E	4 mi W. of Canandaigua	E. J. Monaghan	1902	930	Drl	212	50	6	50	do.	50	1	Al	(a). Temp 49°F, 6/23/48.
Ot 453	9J, 8.0S, 6.3E	4 3/4 mi W. of Canandaigua	S. Langan	1937	900	Drl	251	15	6	14	Ludlowville and Skaneateles shales	13	1	A	Supplies 200 sheep.
Ot 456	9J, 8.0S, 5.0E	1½ mi SE. of Holcomb	E. Saxby	1947	900	Drl	70	55	6	50	Ludlowville shale	8	4	H	
Ot 457	9J, 6.8S, 3.3E	East Bloomfield	O. Baker	1918±	960	Drl	18	18	6	--	Pleistocene deposits	flows	--	H	Temp 49°F, 6/23/48.
Ot 458	9J, 6.2S, 2.4E	2 mi NW. of Holcomb	H. W. Chamberlin	--	1,000	Drl	266	230	6	230	Ludlowville shale	104	4	H	Well has yielded 7 gpm for 24 hrs.
Ot 460	9J, 5.1S, 1.3E	3¼ mi NW. of Holcomb	A. Bennett	1918±	940	Drl	66	66	6	--	Pleistocene sand and gravel	28	8	H	
Ot 463	9J, 6.6S, 1.0E	3 mi W. of Holcomb	Raymond Years	--	940	Dug	25	25	24	--	Pleistocene deposits	3.4 6/24/48	--	Adl	Supplies 10 people and 40 livestock. Temp 50°F, 6/24/48.
Ot 465	9J, 8.0S, 2.5E	2 mi SW. of Holcomb	S. Steele	--	1,040	Dug	28	28	40	--	do.	12	--	H	
Ot 466	9J, 7.8S, 1.3E	4 mi SW. of Holcomb	H. Schreib	--	940	Dug	31	31	36	--	do.	9.9 6/25/48	--	H	Temp 49°F, 6/25/48.
Ot 468	9J, 8.9S, 0.6E	4¼ mi SW. of Holcomb	C. L. Kunes	--	900	Dug	30	30	72	--	do.	20	--	Al	Supplies 20 livestock.
Ot 470	9J, 8.7S, 3.0E	2½ mi SW. of Holcomb	G. F. Breckenridge	1948	1,100	Drl	24	19	6	18	Genesee formation	4	1	H	Water has relatively high iron content.
Ot 473	9J, 9.2S, 2.7E	3 mi SW. of Holcomb	M. Bortle	1946	1,100	Drl	36	36	6	--	Pleistocene sand and gravel	8	3	Adl	Supplies 5 people and 15 livestock. Water has relatively high iron content.
Ot 475	9J, 5.0S, 0.5E	4 mi NW. of Holcomb	F. R. Lockwood	1930	900	Drl	100	97	6 to 4	--	do.	45	--	H	
Ot 478	9J, 4.1S, 1.7E	3½ mi NW. of Holcomb	D. McCarthy	--	820	Dug	68	68	18	--	Pleistocene deposits	60	--	H	Temp 50°F, 6/26/48.
Ot 480	9J, 3.3S, 2.3E	3 mi SW. of Victor	W. Dillman	1936±	800	Drl	134	134	6	--	Pleistocene sand and gravel	44	--	U	

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 481	9J, 2.4S, 2.2E	2 3/4 mi SW. of Victor	Ray Rose	1893	760	Drl	116	116	6	--	Pleistocene sand and gravel	60	--	Adl	Supplies 4 people and 12 livestock.
Ot 483	9J, 1.3S, 1.3E	3½ mi W. of Victor	John Reese	--	650	Drl	72	71	6	--	do.	14	--	Adl	Supplies 6 people and 11 livestock.
Ot 484	9J, 0.7S, 1.3E	do.	L. D. Strong	--	620	Drl	55	55	6	--	do.	18	--	Adl	Supplies 2 people and 4 livestock. Temp 50°F, 6/28/48.
Ot 485	9J, 0.2S, 1.0E	4 mi NW. of Victor	C. E. Potter	--	600	Drl	48	45	6	44	Salina group	20	--	H	
Ot 487	9J, 4.5S, 0.2W	5 mi NW. of Holcomb	D. F. O'Brien	1947	860	Drl	114	114	6	--	Pleistocene sand and gravel	30	--	H	
Ot 488	9J, 11.4S, 4.8E	2 mi N. of Bristol Center	J. Darcy	1940	880	Drl	2,175	2,175	8¼ to 6¼ to 3	--	--	--	--	O	(b). Well was drilled for gas.
Ot 490	9J, 11.6S, 2.4E	3½ mi NW. of Bristol Center	C. Tilton	--	1,140	Drl	30	29	6 5/8	29	Pleistocene deposits and Moscow shale	12	10	H	(b). Drilled inside dug well 19 ft deep.
Ot 492	9J, 11.4S, 1.6E	4½ mi NW. of Bristol Center	Isaac Green	1918	1,140	Drl	72	25	6	24	Genesee formation	20	--	Al	Water contains hydrogen sulfide.
Ot 493	9J, 11.9S, 2.9E	3 mi NW. of Bristol Center	Gordon Allen, Sr.	1947	1,180	Drl	47	38	6 5/8	38	Sonyea formation	12	1	Al	(b).
Ot 494	9J, 12.8S, 2.9E	2 3/4 mi W. of Bristol Center	Reubenstein well No. 1	1933	1,297	Drl	2,726	2,726	--	--	--	--	--	O	(b). Well was drilled for gas. Salt water at depth of 1,540 ft. Listed in N.Y.S. Mus. Bull. 361 (Kreidler, 1957, p. 32).
Ot 495	9J, 15.1S, 2.1E	3 mi E. of Honeoye	E. V. Marshall	1947	1,040	Drl	95	65	6 5/8	64	Sonyea formation	35	½	H	(b). Well yielded flammable gas during drilling.
Ot 496	9J, 12.6S, 0.2E	1½ mi NE. of Honeoye	Frank Earing	1946	1,060	Drl	50	36	6	35	Genesee formation	18	5	Adl	
Ot 497	9J, 13.3S, 1.0E	2 mi NE. of Honeoye	E. C. Tilton	1946	1,250	Drl	26	17	6	16	Sonyea formation	flows	10	H	Well yielded flammable gas during drilling. Water contains hydrogen sulfide.
Ot 499	10J, 0.9N, 0.2W	2 mi SE. of Honeoye	E. Zacker	1948	810	Drl	30	30	6¼	--	Pleistocene deposits	3	25	H	Water is of poor quality.
Ot 501	10J, 1.9N, 0.9W	1 mi S. of Honeoye	E. Ace	1948	900	Drl	58	20	8	20	Genesee formation	20	4	U	Water contains hydrogen sulfide.
Ot 502	10J, 2.0N, 4.4W	3½ mi SW. of Honeoye	W. Kraft	1948	1,290	Drl	112	16	6 5/8	16	West Falls formation (Hatch and Rhinestreet shale members) and Sonyea formation	67	1	H	Drilled inside dug well 12 ft deep.
Ot 503	10J, 10.8N, 2.6W	7 mi W. of Holcomb	Ravine Restaurant Donald Graves	1947	860	Drl	117	117	6 5/8	--	Pleistocene sand and gravel	40	15	Csp	(b). Supplies restaurant.
Ot 504	10J, 11.7N, 2.6W	do.	F. B. Marshall	1938	800	Drl	190	101	6	100	Skaneateles and Marcellus shales	150	6	Adl	Supplies 9 people and 70 livestock.
Ot 506	10J, 12.3N, 2.7W	7¼ mi NW. of Holcomb	L. Strapp	1946	785	Drl	151	121	6	120	do.	35	5	Adl	Supplies 6 people and 70 livestock.
Ot 508	10J, 12.8N, 2.2W	7 mi NW. of Holcomb	W. G. Nudd	--	760	Drl	130	--	6	--	--	15	10	Adl	Supplies 6 people and 75 livestock. Drilled inside dug well 30 ft deep.
Ot 509	10J, 12.7N, 1.1W	6 mi NW. of Holcomb	F. Sackett	--	800	Drl	150	136	6	135	Skaneateles and Marcellus shales	35	--	Adl	Supplies 5 people and 40 livestock. Drilled inside dug well 40 ft deep.
Ot 510	9J, 5.7S, 10.7E	2 mi N. of Canandaigua	John Cross	1915±	780	Drl	60	30	6	30	Skaneateles shale	10	--	H	Drilled inside dug well 30 ft deep. Temp 51°F, 7/22/48.
Ot 512	9J, 3.8S, 11.0E	4 mi N. of Canandaigua	M. G. Elwell	1945	680	Drl	52	50	6	--	Pleistocene sand and gravel	20	--	H	
Ot 513	9J, 2.8S, 10.6E	5 mi N. of Canandaigua	B. Reed	1946	640	Drl	44	28	6	28	Onondaga limestone	20	8	H	
Ot 515	9J, 2.3S, 11.2E	5½ mi N. of Canandaigua	F. A. King	1940	610	Drl	50	52½	6	--	Pleistocene deposits and Cobleskill dolomite	12.8 7/22/48	--	H	(a). Temp 49°F, 7/22/48.

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diamater (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 516	9J, 1.5S, 11.4E	$3\frac{1}{4}$ mi NW. of Shortsville	S. Whitbeck	--	600	Dug	32	32	19	--	Pleistocene deposits	25.9 7/23/48	--	H	Temp 50°F, 7/23/48.
Ot 518	9J, 0.5S, 12.4E	do.	M. Coulter	1910	615	Drl	42	40	6	40	Pleistocene deposits and Camillus shale	27	--	Al	Supplies 12 livestock.
Ot 521	9J, 2.2S, 10.4E	$5\frac{1}{2}$ mi N. of Canandaigua	C. S. Redfield	1921	610	Drl	48	26	6	25	Onondaga limestone	20	--	H	Temp 53°F, 7/23/48.
Ot 522	9K, 0.1N, 2.0W	5 mi NW. of Shortsville	P. J. DeWandel	1923±	615	Drl	154	--	6	100±	Camillus shale	50	--	U	Well abandoned in 1933 because it produced "black sulfur water" (see remarks for well Ot 219) which rapidly corroded plumbing fixtures. Water supply is obtained from spring Ot 17Sp located $\frac{1}{4}$ mi southwest of well.
Ot 523	9K, 0.6N, 0.3W	$4\frac{1}{4}$ mi NW. of Shortsville	Thomas O'Connell	--	590	Drl	50	--	6	--	Pleistocene deposits	43.3 7/23/48	--	H	
Ot 525	9K, 1.7N, 1.3W	5 3/4 mi NW. of Shortsville	A. DeJaeger	--	560	Drl	41	41	6	--	Pleistocene sand and gravel	flows	60	Ai	Flows in spring of year. Supplies greenhouse.
Ot 528	9K, 0.4N, 2.8W	do.	Floyd Sheldon	1947	610	Drl	48	--	6	46	Pleistocene deposits and Camillus shale	33	10	H	Total hardness 580 ppm on 4/26/48. Drilled inside dug well 30 ft deep.
Ot 530	9K, 2.0N, 3.7W	$5\frac{1}{2}$ mi NE. of Victor	A. Herendeen	1947	560	Drl	120	120	6	--	do.	60	--	Al	Water probably enters well at contact between unconsolidated deposits and bedrock. Well supplies 35 livestock.
Ot 531	9K, 2.1N, 4.1W	5 mi NE. of Victor	E. Williams	1948	550	Drl	40	35	6	34	Camillus shale	--	--	H	(a).
Ot 534	9J, 5.1S, 9.7E	3 mi NW. of Canandaigua	R. C. Tuttle	1949	770	Drl	110	29	6	29	Skaneateles and Marcellus shales, and Onondaga limestone	50	30	Adl	(a) (b). Temp 50°F, 2/14/50. Water reported to have salty taste.
Ot 537	9J, 2.5S, 9.3E	$5\frac{1}{2}$ mi NW. of Canandaigua	L. J. O'Maal	--	650	Dug	25	25	22	--	Pleistocene deposits	--	--	Al	Supplies 38 livestock.
Ot 538	9J, 0.9S, 8.8E	4 mi E. of Victor	A. H. Tuttle	--	620	Drl	50	--	6	--	--	20	--	H	Goes dry in dry seasons.
Ot 539	9J, 1.7S, 8.2E	$3\frac{1}{2}$ mi E. of Victor	F. V. Alderman	1938	630	Drl	66	46	6	45	Onondaga limestone, Cobleskill dolomite, and Bertie limestone	11	--	H	
Ot 540	9J, 0.4S, 8.8E	4 mi NE. of Victor	Frank Cobb	1928	600	Drl	135	--	6	--	Salina group	50	--	Al	Water contains hydrogen sulfide. Drilled inside dug well 30 ft deep.
Ot 541	9K, 0.1N, 3.5W	$5\frac{1}{2}$ mi NE. of Victor	J. S. Holtz	--	590	Drl	80	41	6	40	Camillus shale	--	1	H	Drilled inside dug well 40 ft deep.
Ot 542	9K, 1.3N, 1.6W	$5\frac{1}{2}$ mi NW. of Shortsville	George Fox	1928	570	Drl	82	82	6	12	do.	2	60	H	(a). Temp 50°F, 8/22/52.
Ot 543	9K, 0.4N, 4.9W	$3\frac{1}{2}$ mi NE. of Victor	O. Young	--	600	Dug	19	--	36	--	Pleistocene deposits	15.0 7/26/48	--	Adl	Supplies 7 people and 18 livestock. Temp 50°F, 7/26/48.
Ot 544	9K, 1.9N, 5.2W	$4\frac{1}{2}$ mi NE. of Victor	Robert Weigert	1945	560	Drl	108	100	6	90	Camillus shale	40	--	Adl	Supplies 4 people and 55 livestock.
Ot 545	9K, 0.9N, 5.8W	$3\frac{1}{2}$ mi NE. of Victor	Schrader Brothers	1943	560	Drl	44	44	6	--	Pleistocene deposits	22	2	Al	Temp 50°F, 7/26/48.
Ot 546	9K, 0.2N, 5.9W	$2\frac{1}{2}$ mi NE. of Victor	Harold Weigert	--	580	Drl	88	66	6	65	Camillus shale	21	16	Adl	Supplies 3 people and 44 livestock.
Ot 548	9J, 0.7S, 6.9E	do.	S. Bowers	1948	600	Dug	23	23	30	--	Pleistocene deposits	19.5 7/26/48	--	Adl	Supplies 9 people and 11 livestock. Temp 50°F, 7/26/48.
Ot 550	9J, 0.1S, 6.0E	1 3/4 me NE. of Victor	Willis Simonds	--	560	Dug	16	16	30	--	do.	6.8 4/27/48	--	H	Temp 52°F, 7/27/48.
Ot 553	9K, 0.9N, 7.3W	$2\frac{1}{2}$ mi N. of Victor	O. English	1945	620	Drl	59	59	6	--	do.	15.5 7/27/48	--	H	Temp 51°F, 7/27/48.

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 554	9K, 1.6N, 7.6W	3¼ mi N. of Victor	A. Dorfer	1938±	620	Drl	111	111	6	110	Pleistocene deposits and Camillus shale	37	--	H	Water enters well at contact between the Camillus shale of the Salina group and the overlying Pleistocene deposits. Water has relatively high iron content.
Ot 556	9K, 1.9N, 9.6W	3 3/4 mi NW. of Victor	Kenneth Smith	1944	715	Drl	168	155	6 to 5	155	Camillus shale	96	5	H	Well drilled to 72 ft in 1942 and used successfully for 1 year. Later became dry and was deepened to 168 ft.
Ot 557	9K, 1.5N, 9.9W	3½ mi NW. of Victor	H. Erber	1948	640	Drl	138	--	6	--	--	43.2 7/28/48	5	H	
Ot 558	9K, 1.5N, 10.4W	do.	M. W. Strong	--	575	Drl	173	155	6	150	Camillus shale	40	--	H	(b).
Ot 559	9K, 2.4N, 11.2W	5 mi NW. of Victor	A. Kaiser	--	560	Dug	36	36	24	--	Pleistocene sand and gravel	24.5 7/28/48	--	H	Temp 49°F, 7/28/48.
Ot 562	9J, 1.5N, 1.8E	4 mi NW. of Victor	Joseph Lortscher, Sr.	--	490	Dug	12	12	30	--	do.	8	--	H	
Ot 563	9K, 0.8N, 11.1W	Fishers	Fred Fowler	1941	520	Drl	63	61	6	--	Pleistocene sand	10	--	H	(a).
Ot 566	9J, 0.1S, 2.0E	3 mi NW. of Victor	George Maynard	--	560	Drl	77	77	6	74	Bertie limestone	32	--	H	
Ot 570	9K, 0.3N, 7.7W	1 3/4 mi N. of Victor	C. Maier	1945	680	Drl	121	121	6	--	Pleistocene deposits	--	5	H	(a).
Ot 573	9K, 0.9N, 8.7W	2½ mi NW. of Victor	L. C. Boughton	--	760	Dug	57	57	36	--	Pleistocene till	11.2 7/29/48	--	Adl	
Ot 576	9J, 0.2S, 4.0E	1¼ mi NW. of Victor	W. Baker	1948	700	Drl	106	--	6	97	Bertie limestone	87	5	H	Has been pumped at 5 gpm for 4 hrs.
Ot 579	9J, 4.9S, 3.0E	2 mi NW. of Holcomb	E. Years	--	840	Drl	64	36	6	34	Skaneateles shale	58	1½	Al	Supplies 30 livestock.
Ot 580	9J, 7.0S, 5.7E	1½ mi E. of Holcomb	V. Randall	--	880	Dug	26	26	36	--	Pleistocene till	8.3 7/30/48	--	Adl	Supplies 2 people and 14 livestock.
Ot 582	9J, 6.2S, 5.2E	1¼ mi NE. of Holcomb	F. A. Buell	1946	840	Drl	147	52	6	48	Skaneateles shale	17	15	Al	(a). Water contains hydrogen sulfide. Supplies 40 livestock.
Ot 585	9J, 4.9S, 5.0E	2 mi NE. of Holcomb	Paul Birdsall	--	860	Dug	27	27	24	--	Pleistocene deposits	31	--	H	
Ot 586	9J, 4.8S, 5.9E	2½ mi NE. of Holcomb	N. Ellsworth	1947	760	Drl	137	137	6	137	do.	57	--	Al	Supplies 35 livestock.
Ot 587	9J, 5.5S, 6.6E	5 mi NW. of Canandaigua	R. E. Brocklebank	--	800	Drl	100	31	6	30	Skaneateles shale	20	1	H	
Ot 588	9J, 6.3S, 7.2E	4½ mi NW. of Canandaigua	H. Northrop	1946	842	Drl	72	72	6	70	do.	40	8	Adl	Supplies 6 people and 32 livestock.
Ot 592	9J, 3.8S, 7.3E	5½ mi NW. of Canandaigua	M. S. Johnson	1910±	720	Drl	52	--	6	--	Marcellus shale and Onondaga limestone	40	--	Adl	Drilled inside dug well 27 ft deep.
Ot 594	9J, 3.2S, 7.1E	3 mi SE. of Victor	F. Mandrio	1938	680	Drl	36	35	6	35	Pleistocene deposits and Onondaga limestone	12.3 8/ 1/48	--	Adl	Drilled inside dug well 10 ft deep.
Ot 596	9J, 4.8S, 7.1E	5 mi NW. of Canandaigua	J. Yerkes	1946	760	Drl	92	75	6	73	Skaneateles shale	20	4	Al	Supplies 95 livestock.
Ot 598	9J, 5.4S, 7.0E	4½ mi NW. of Canandaigua	J. Purdy	1946	800	Drl	52	18	6	16	do.	34	4	Adl	Supplies 2 people and 75 sheep.
Ot 600	9J, 6.8S, 7.5E	4 3/4 mi W. of Canandaigua	Fred Yerkes	1948	860	Drl	100	95	6	93	do.	30	--	H	
Ot 601	9J, 7.6S, 7.9E	3½ mi W. of Canandaigua	K. M. Thompson	--	860	Dug	45	45	36	--	Pleistocene deposits	17.6 8/ 2/48	--	H	
Ot 603	9J, 6.5S, 9.4E	2 mi NW. of Canandaigua	C. P. Connelly	1945	800	Drl	36	36	6	--	Pleistocene sand and gravel	11	10	H	Water has relatively high iron content.
Ot 605	9J, 6.2S, 9.2E	2¼ mi NW. of Canandaigua	W. A. McCann	--	800	Dug	26	26	48	--	Pleistocene deposits	--	--	H	(a). Temp 48°F, 8/2/48.

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 608	9J, 5.6S, 8.8E	3 mi NW. of Canandaigua	L. H. Purdy	1910	790	Drl	98	33	6	32	Skaneateles shale	23	--	Adl	Supplies 110 livestock.
Ot 611	9J, 10.2S, 5.3E	3 mi N. of Bristol Center	Leon Berry	1940	900	Drl	57	57	6	--	Pleistocene sand and gravel	6	--	Al	Supplies 13 livestock.
Ot 614	9J, 9.7S, 4.5E	3¼ mi S. of Holcomb	A. G. Sherman	1945	1,170	Drl	100	90	6	90	Genesee formation	50	6	Al	Well yielded some flammable gas from depth of 90 ft.
Ot 617	9J, 10.6S, 3.8E	4 mi S. of Holcomb	H. J. McGreehan	1946	1,160	Drl	76	--	6	--	do.	6	3	H	Water contains hydrogen sulfide.
Ot 618	9J, 10.2S, 6.0E	6 mi SW. of Canandaigua	G. Hallock	--	1,160	Dug	22	22	36	--	Pleistocene till	10	--	Adl	(a). Goes dry in dry seasons.
Ot 619	9J, 10.5S, 6.3E	2 3/4 mi NE. of Bristol Center	L. Ingalls	--	1,140	Drl	100	--	6	--	--	37.28 8/ 3/48	--	H	Well yields some flammable gas.
Ot 622	9J, 9.3S, 6.4E	3½ mi SE. of Holcomb	William Houghton	--	980	Dug	23	23	40	--	Pleistocene deposits	11.5 8/ 4/48	--	H	
Ot 628	9J, 11.4S, 8.4E	4½ mi SW. of Canandaigua	Wesley Collins	1950	1,140	Drl	205	42	6	40	Genesee formation	13	3	H	(b). Well was drilled to a depth of 42 ft in 1938 and deepened to 205 ft in 1950. Water contains hydrogen sulfide. Well once yielded flammable gas.
Ot 630	9J, 11.8S, 6.5E	1½ mi NE. of Bristol Center	R. J. Scoville	--	1,140	Dug	19	19	36	--	Pleistocene till	13.1 8/ 5/48	--	H	
Ot 632	9K, 2.7S, 10.3E	Phelps	Arthur Hughson	1946	490	Drl	36	20	6	16	Salina group	7	20	H	Drilled inside dug well 14 ft deep. Gravel layer 2 ft thick overlies bedrock.
Ot 634	9K, 5.7S, 10.1E	3 mi S. of Phelps	Chester Gridley	1942	620	Drl	83	30	6	28	Marcellus shale and Onondaga limestone	3	15	H	Drawdown 30 ft after pumping 15 gpm for 3 hrs. Water contains hydrogen sulfide.
Ot 636	9K, 7.8S, 10.4E	3½ mi NW. of Geneva	T. L. Goodall	--	720	Drl	54	54	6	--	Pleistocene sand and gravel	27	15	H	Has been pumped at 15 gpm for 2 hrs.
Ot 638	9K, 8.7S, 10.4E	3¼ mi W. of Geneva	Charles Lucey	--	720	Dug	24	24	48	--	Pleistocene deposits	23	--	Al	Goes dry in dry seasons. Supplemental water is carried to farm in tanks.
Ot 640	9J, 14.4S, 9.5E	7 mi SW. of Canandaigua	G. Mountjoy	1948	780	Drl	119	23	6	20	Moscow and Ludlowville shales	--	10	H	(b). Well was considered finished when 67 ft deep. Had to be deepened to 119 ft after 2 months of use. Has been pumped at 10 gpm for 3 hrs. Water contains hydrogen sulfide.
Ot 642	9J, 12.8S, 12.2E	5½ mi SE. of Canandaigua	P. Horton	1948	780	Drl	114	114	6	--	Pleistocene sand	30	15	H	(b).
Ot 644	9K, 13.5S, 9.9E	4 mi E. of Gorham	Rexford Ansley	1943	840	Drl	106	20	6	18	Moscow and Ludlowville shales	5	1½	Adl	
Ot 647	9K, 15.1S, 9.2E	4 mi SE. of Gorham	W. J. McFetridge	1941	960	Drl	100	90	6	85	Genesee formation	25	25	Adl	Supplies 9 people and 25 livestock. Contains some hydrogen sulfide.
Ot 648	9K, 14.6S, 10.1E	4½ mi E. of Gorham	M. Redman	1936	860	Drl	133	40	6	38	Genesee formation, Tully limestone, and Moscow shale	--	--	Adl	(b).
Ot 650	9K, 15.6S, 9.8E	4½ mi SE. of Gorham	O. R. Robson	--	860	Drl	100+	--	6	30	--	10	--	--	
Ot 651	9K, 15.8S, 12.1E	7½ mi S. of Geneva	Chris Hansen	1935	760	Drl	186	186	6	--	Pleistocene sand	18	30	Adl	Supplies 13 livestock.
Ot 652	9K, 16.0S, 11.1E	7½ mi SW. of Geneva	Willis Austin	--	840	Dug	20	20	36	--	Pleistocene till	4	--	Adl	
Ot 653	9K, 15.0S, 11.1E	7 mi SW. of Geneva	Gordon Bush	--	860	Dug	25	25	36	--	do.	10.0 8/ 7/48	--	Al	Supplies 14 livestock. Temp 47°F, 8/7/48.
Ot 654	9K, 13.8S, 11.7E	5½ mi SW. of Geneva	Peter DeBoover	--	740	Drl	93	45	6	43	Ludlowville shale	10	3	--	Supplies 30 livestock.

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 655	9K, 14.5S, 12.4E	6 mi SW. of Geneva	District No. 3 Schoolhouse	--	720	Drl	40	36	6	34	Ludlowville shale	flows	--	Cs	Supplies small school. Temp 49°F, 8/8/48.
Ot 656	9K, 15.3S, 12.3E	6½ mi SW. of Geneva	S. Bishop	1916	760	Drl	120	91	6	90	Moscow shale	14	2	Adl	
Ot 657	9J, 5.7S, 0.5E	4 mi NW. of Holcomb	W. Lockwood	1947	960	Drl	119	115	6	--	Pleistocene sand and gravel	--	1	H	
Ot 658	9J, 7.0S, 1.0E	3½ mi W. of Holcomb	A. Birdsall	1947	940	Drl	207	205	6	--	Pleistocene sand	22	9	H	Has been pumped at 9 gpm for 4 hrs.
Ot 661	9J, 10.6S, 1.5E	4¼ mi N. of Honeoye	Harry McKee	--	1,140	Dug	28	28	30	--	Pleistocene till	13.1 8/ 9/48	--	H	
Ot 663	9J, 10.6S, 2.7E	4¼ mi SW. of Holcomb	Martin Blood	--	1,070	Dug	27	27	36	--	do.	13	--	H	
Ot 664	9J, 12.9S, 1.7E	3 mi NE. of Honeoye	George Wood	--	1,340	Drl	45	--	36	--	--	16	30	Adl	Drilled inside dug well. Supplies 10 people and 65 livestock.
Ot 666	9J, 6.7S, 1.8E	2½ mi W. of Holcomb	Preston Fleming	1948	1,000	Drl	220	220	6	--	Pleistocene sand and gravel	100	6	Cs	(b). Well is 1 of 3 started on property. Drilling of 2 earlier wells was discontinued because of boulders. Supplies trailer park and 14 cabins.
Ot 667	10J, 11.7N, 0.5W	4 3/4 mi NW. of Holcomb	H. Niles	--	940	Dug	12	12	24	--	do.	4	--	H	Supplies 19 people.
Ot 668	10J, 9.5N, 2.0W	6½ mi W. of Holcomb	Leo Leary	--	1,020	Drl	180	180	6	--	Pleistocene sand	60±	--	Adl	Well back-filled with gravel to depth of 160 ft.
Ot 669	10J, 9.4N, 1.1W	5½ mi W. of Holcomb	G. C. Wood	1912	985	Drl	117	--	6	--	--	49	4	Adl	Supplies 2 people and 24 livestock. Drilled inside dug well. Temp 50°F, 10/12/48.
Ot 670	10J, 9.0N, 0.4W	4 3/4 mi W. of Holcomb	John Rawlinson	1910±	920	Drl	94	94	6	--	Pleistocene sand and gravel	--	8	H	
Ot 671	10J, 7.8N, 1.9W	5½ mi N. of Honeoye	Fred Grundman	1910±	875	Drl	120	--	6	--	do.	40	--	Adl	Supplies 5 people and 21 livestock.
Ot 672	10J, 5.7N, 1.8W	3 mi NW. of Honeoye	J. Shetler	--	800	Dug	25	25	36	--	Pleistocene silt and sand	19	--	H	
Ot 673	10J, 4.0N, 0.3W	1½ mi NE. of Honeoye	E. J. Nighan	1875±	860	Dug	7	7	48	--	Pleistocene till	3	--	H	Temp 51°F, 10/12/48.
Ot 674	10J, 5.8N, 0.7W	3 mi N. of Honeoye	George Deal	1946	940	Drl	58	31	6	30	Moscow shale	13	6	Al	Water contains hydrogen sulfide.
Ot 675	10J, 6.2N, 0.8W	3½ mi N. of Honeoye	R. Cook	--	1,020	Drl	150	96	6	95	Genesee formation	40	1	Al	Supplies 25 livestock. Water contains hydrogen sulfide.
Ot 676	10J, 11.5N, 1.9W	6¼ mi W. of Holcomb	James Stanton	1938	870	Drl	76	--	6	--	--	flows	--	H	
Ot 678	10J, 8.3N, 1.4W	5½ mi N. of Honeoye	James Ryan	--	860	Drl	76	76	6	--	Pleistocene sand	25	--	H	
Ot 679	10J, 7.4N, 0.3W	4 3/4 mi N. of Honeoye	Gene Fisher	1908±	900	Drl	120	--	6	--	--	80	--	Adl	Supplies 8 people and 50 livestock. Temp 51°F, 10/13/48.
Ot 680	10J, 3.4N, 1.7W	1 mi NW. of Honeoye	L. B. Ashley	1939	910	Drl	338	11	6	8	Genesee formation, Tully limestone, and Moscow and Ludlowville shales	40	½	H	
Ot 685	10J, 3.1N, 3.1W	2¼ mi W. of Honeoye	L. Shattuck	1936	1,150	Drl	42	11	6	10	Sonyea formation	7.8 10/14/48	10	Al	Water contains hydrogen sulfide. Temp 50°F, 10/14/48.
Ot 688	10J, 3.9N, 2.4W	2 mi NW. of Honeoye	G. H. Ashley	--	940	Drl	58	46	6	44	Genesee formation	15	--	Adl	Supplies 5 people and 130 livestock. Originally drilled to depth of 78 ft. Water contains hydrogen sulfide.
Ot 690	10J, 5.2N, 2.4W	3 mi NW. of Honeoye	H. Shetler	--	800	Dug	16	16	50	--	Pleistocene silt and clay	5.2 10/14/48	--	H	Temp 52°F, 10/14/48.
Ot 691	10J, 5.9N, 3.6W	4 mi NW. of Honeoye	R. Farrell	--	905	Dug	17	17	40	--	Pleistocene deposits	11.3 10/15/48	--	Adl	Supplies 5 people and 50 livestock. Temp 51°F, 11/15/48.

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 692	10J, 6.7N, 3.7W	5 mi NW. of Honeoye	Frank Stoltman	--	880	Dug	12	12	36	--	Pleistocene silt and clay	8	--	Adl	Supplies 5 people and 20 livestock. Water contains hydrogen sulfide.
Ot 694	10J, 3.9N, 3.6W	3 mi NW. of Honeoye	Robert Reed	--	1,090	Dug	40	40	36	--	Pleistocene till	20	4	--	Supplies 7 people and 20 livestock. Temp 50°F, 10/15/48. An unused drilled well, 45 ft deep, is located on the same property.
Ot 695	10J, 5.2N, 3.9W	4 mi NW. of Honeoye	City of Rochester	--	960	Drl	30	27	6	--	Pleistocene sand and gravel	flows	--	H	
Ot 697	10J, 1.0N, 4.4W	4 mi SW. of Honeoye	P. DeGraff	--	1,100	Dug	16	16	36	--	Pleistocene deposits	6	--	H	
Ot 698	10J, 0.2N, 4.7W	4½ mi SW. of Honeoye	Fred Rath	--	1,280	Oug	20	20	36	--	Pleistocene till	10.0 10/15/48	--	H	
Ot 699	10J, 0.5S, 3.5W	4¼ mi SW. of Honeoye	Roy Swan	1914	1,140	Dug	28	28	36	--	Pleistocene deposits	20	--	H	
Ot 700	10J, 2.1N, 3.5W	3 mi W. of Honeoye	T. Henry	1944	1,400	Drl	73	23	6	22	West Falls formation (Hatch shale member)	35	3	Adl	Supplies 6 people and 40 livestock.
Ot 701	10J, 1.3N, 3.6W	3 mi SW. of Honeoye	Ira Briggs	--	1,560	Drl	60	11	6	10	West Falls formation	11	6	Adl	Supplies 6 people and 55 livestock.
Ot 703	10J, 2.7N, 2.2W	1½ mi W. of Honeoye	Robert Eddy	--	1,097	Drl	70	31	6	30	Sonyea formation	20	8	Adl	Water contains hydrogen sulfide.
Ot 704	10J, 1.9N, 1.6W	1 mi SW. of Honeoye	A. M. Plain	--	1,060	Dug	23	23	36	--	Pleistocene till	10.7 10/16/48	--	Adl	Temp 51°F, 10/16/48.
Ot 705	10J, 0.9N, 1.7W	2 mi SW. of Honeoye	L. C. Owen	--	1,280	Drl	25	5	6	4	West Falls formation (Hatch and Rhine-street shale members)	6	2	H	
Ot 706	10J, 0.9S, 2.9W	4¼ mi SW. of Honeoye	C. Hasenflug	1942	1,440	Drl	144	31	6	30	West Falls formation	--	8	H	Yields 3 gpm at depth of 78 ft. Temp 50°F, 10/16/48.
Ot 707	10J, 0.1N, 1.9W	3 mi SW. of Honeoye	J. T. Hopkins	--	1,260	Dug	14	14	36	--	Pleistocene till	11.6 10/17/48	--	H	Well bottoms on bedrock. Temp 53°F, 10/16/48.
Ot 710	10J, 0.9S, 2.1W	4 mi SW. of Honeoye	Truman Becker	--	1,570	Drl	40	40	6	--	do.	30	--	H	
Ot 711	10J, 2.7S, 2.9W	6 mi S. of Honeoye	Dayton Becker	1941	1,400	Drl	76	31	6	30	West Falls formation	9	4	Adl	
Ot 712	10J, 3.4S, 2.8W	6½ mi S. of Honeoye	W. Preston	1946	1,440	Drl	56	33	6	32	do.	--	3	Adl	
Ot 713	10J, 5.1S, 3.5W	8½ mi SW. of Honeoye	Fred Giles	--	1,440	Dug	11	11	36	--	Pleistocene till	6	--	Adl	Supplies 2 people and 20 livestock. Temp 51°F, 10/18/48.
Ot 715	10J, 3.7S, 3.3W	7 mi SW. of Honeoye	J. C. Magin	--	1,180	Drl	65	11	6	10	West Falls formation (Hatch and Rhine-street shale members)	--	8	H	
Ot 716	10J, 0.3N, 0.9W	2½ mi S. of Honeoye	J. Lambo	1948	820	Dug	12	12	60	½	Genesee formation	4	10	H	Supplies summer cottages.
Ot 718	10J, 0.3S, 0.9W	3 mi S. of Honeoye	A. E. Bellard	--	840	Drl	41	20	6	--	Sonyea and Genesee formations	17.4 10/18/48	--	--	
Ot 719	10J, 1.2S, 1.0W	4 mi S. of Honeoye	Wilber Clint	--	880	Drl	26	26	6	13	Sonyea formation	4	10±	H	Water contains hydrogen sulfide.
Ot 720	10J, 2.0S, 3.3W	5 mi S. of Honeoye	G. L. Alger	--	880	Drl	32	8	6	6	do.	6	10	H	Water has relatively high iron content.
Ot 721	10J, 3.2S, 0.5W	6 mi S. of Honeoye	Roy McMann	--	860	Drl	60	--	6	--	do.	--	--	Adl	Supplies 2 people and 2 horses. Water is turbid.
Ot 722	10J, 2.0S, 1.7W	5 mi S. of Honeoye	H. Hart	1944	1,820	Drl	110	12	6	10	West Falls formation	45	5	H	
Ot 723	10J, 2.8S, 1.4W	5 3/4 mi S. of Honeoye	F. W. Ross	--	1,960	Drl	68	3	6	2	Wiscoy sandstone	15	--	H	
Ot 724	10J, 4.2S, 2.1W	7¼ mi S. of Honeoye	C. H. Renaud	--	1,940	Dug	8	8	36	--	Pleistocene till	--	--	H	Well bottoms on bedrock.

Table 10.--Records of selected wells and test holes in Ontario County

Par. 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 725	10J, 5.3S, 2.6W	8½ mi S. of Honeoye	Lee Harris	--	1,800	Dug	30	30	36	--	Pleistocene till	15	--	Adl	Supplies 3 people and 18 livestock.
Ot 726	10J, 0.1N, 0.2W	3 mi S. of Honeoye	Howard Decker	1948	810	Drl	104	19	6 5/8	18	Genesee formation	18	4	H	
Ot 727	10J, 0.8S, 4.9W	5½ mi SW. of Honeoye	L. Marshall	--	1,420	Dug	12	11	36	12	Pleistocene till	8.9 10/19/48	--	H	
Ot 729	10J, 1.7S, 4.5W	6 mi SW. of Honeoye	G. L. Gugel	--	1,680	Drl	65	15	6	6	West Falls formation	20	10	H	
Ot 730	10J, 3.5S, 4.6W	7½ mi SW. of Honeoye	Andrew Linn	--	1,540	Dug	22	22	30	22	do.	5	--	H	
Ot 733	9J, 16.0S, 6.8E	3½ mi SE. of Bristol Center	Addie Trickey	--	1,100	Dug	8	8	36	--	Pleistocene till	4	--	H	
Ot 734	9J, 15.2S, 5.0E	2¼ mi S. of Bristol Center	M. Kahn	--	930	Dug	24	24	36	--	Pleistocene silt and clay	10	--	H	
Ot 735	9J, 15.9S, 4.7E	3 mi S. of Bristol Center	L. Riefer	--	940	Drl	65	--	6	--	--	--	--	H	Temp 50°F, 10/20/48.
Ot 737	10J, 2.7S, 6.0E	7 mi N. of Naples	J. Barrett	--	1,200	Drl	100	30	6	29	West Falls formation	28	1	Al	(a).
Ot 739	10J, 3.0S, 6.2E	6½ mi N. of Naples	M. Lincoln	--	1,220	Drl	70	10	6	8	do.	11	11	H	
Ot 741	10J, 6.7S, 6.1E	3 mi NE. of Naples	N. Baader	--	1,240	Drl	32	8	6	7	do.	8	1	H	
Ot 742	10J, 7.8S, 5.6E	1½ mi NE. of Naples	Widmer's Wine Cellars, Inc.	--	980	Drl	50	12	6	10	do.	--	5	H	
Ot 743	10J, 9.3S, 4.8E	Naples	do.	1940	820	Drl	60	18	8	15	do.	15	5	U	
Ot 744	10J, 8.0S, 5.7E	1½ mi NE. of Naples	Frank Saunders	1948	900	Drl	150	9	6	8	Sonyea formation	110	0.1	--	(b).
Ot 746	10J, 4.2S, 5.2E	5 mi N. of Naples	J. Scott	1948	1,940	Drl	81	10	6	9	West Falls formation	20	15	--	Temp 46°F, 10/22/48.
Ot 747	10J, 3.5S, 4.8E	6 mi N. of Naples	Lee McCanne	1948	2,120	Drl	138	17	6	16	do.	85	15	H	Yielded 6 gpm at depth of 118 ft.
Ot 749	10J, 5.2S, 5.6E	4 mi N. of Naples	William Schenk	--	1,620	Drl	65	10	6	8	do.	20	--	Adl	Supplies house and 40 livestock.
Ot 751	10J, 1.0S, 5.0E	5¼ mi S. of Bristol Center	R. Landman	1947	1,060	Drl	96	96	6	--	Pleistocene sand and gravel	--	6	H	Water has relatively high iron content.
Ot 753	10J, 0.5S, 6.1E	4 3/4 mi SE. of Bristol Center	H. Kidman	--	1,700	Dug	20	20	30	--	Pleistocene till	5	--	H	Temp 52°F, 10/23/48.
Ot 754	9J, 13.8S, 4.1E	1½ mi SW. of Bristol Center	William Woodard	--	1,380	Dug	12	12	36	--	do.	9.2 10/23/48	--	H	Well bottoms on bedrock. Goes dry in dry seasons. Temp 52°F, 10/23/48.
Ot 756	9J, 13.5S, 2.3E	3¼ mi W. of Bristol Center	E. A. Pestle	--	1,480	Dug	17	17	36	--	do.	17.0 10/26/48	--	H	Goes dry in dry seasons.
Ot 758	9J, 16.3S, 2.8E	4½ mi SW. of Bristol Center	T. Atterbury	--	1,320	Dug	22	22	36	--	do.	20.3 10/26/48	--	H	Temp 54°F, 10/26/48.
Ot 759	10J, 1.4S, 3.2E	6¼ mi SW. of Bristol Center	A. Warden	--	1,360	Dug	22	22	36	--	do.	16.8 10/26/48	--	H	Temp 51°F, 10/26/48.
Ot 760	10J, 2.0S, 4.3E	6¼ mi S. of Bristol Center	A. Fox	--	1,260	Dug	27	27	36	--	Pleistocene sand and gravel	25.5 10/26/48	--	H	Temp 52°F, 10/26/48.
Ot 761	10J, 0.5S, 3.8E	5 mi S. of Bristol Center	GLF Radio Station	--	2,120	Drl	200	4	6	3	West Falls formation	150	1½	Cs	Supplies water used in operation of radio transmission tower.
Ot 762	10J, 7.3S, 4.1E	2 mi NW. of Naples	R. McCormick	1948	1,400	Drl	66	66	6	--	Pleistocene sand	60	1½	H	(b).
Ot 763	10J, 5.3S, 4.2E	4 mi N. of Naples	H. Weiss	1948	1,520	Drl	72	23	6	22	West Falls formation	10	5	Adl	(a). Bedrock is overlain by layer of gravel 22 ft thick.

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 764	10J, 4.8S, 4.2E	4½ mi N. of Naples	John DeClemente	1948	1,700	Drl	108	61	6	60	West Falls formation	10	3½	H	(b).
Ot 765	9J, 8.5S, 1.0E	3½ mi SW. of Holcomb	C. D. Beard	1948	900	Drl	215	162	6	161	--	--	--	U	(b). Dry hole.
Ot 766	9J, 14.6S, 11.1E	3¼ mi NW. of Rushville	R. F. Gentner	1948	740	Drl	78	16	6	15	Moscow and Ludlowville shales	10	10	H	
Ot 767	9J, 9.7S, 12.6E	2½ mi SE. of Canandaigua	George Bahringer	1948	720	Drl	45	45	6	--	Pleistocene sand and gravel	24	20	H	(b).
Ot 768	9J, 7.0S, 12.4E	1¼ mi NE. of Canandaigua	W. Putnam	1948	700	Drl	130	100	6	100	Skaneateles and Marcellus shales	22	3	H	(a) (b).
Ot 769	9J, 6.7S, 11.7E	do.	H. Bennett	1948	800	Drl	52	8	6	4	Ludlowville and Skaneateles shales	3	4	H	
Ot 770	9J, 2.5S, 4.4E	1 mi S. of Victor	Gordon Barry	1948	760	Drl	56	56	6	--	Pleistocene sand and gravel	30	10	H	Water-bearing formation is overlain by sandy clay.
Ot 771	9J, 2.1S, 4.5E	3/4 mi S. of Victor	Walter Barry	1948	700	Drl	60	19	6	19	Onondaga limestone and Cobleskill dolomite	20	16	Adl	(a). Supplies house and 100 livestock. Bedrock is overlain by gravel.
Ot 772	9K, 0.7N, 10.9W	Fishers	H. H. Mohr	--	540	Drl	154	154	6	--	Pleistocene sand and gravel	35	5	H	
Ot 773	9J, 16.4S, 3.5E	3½ mi SW. of Bristol Center	Raymond F. Allen	1934	1,810	Drl	122	21	6	20	West Falls formation (Gardeau shale, Grimes siltstone, and Hatch shale members)	15	5	H	
Ot 774	9J, 15.6S, 1.1E	2½ mi SE. of Honeoye	H. Deuel	--	1,300	Dug	32	32	36	--	Pleistocene till	16	--	H	
Ot 775	10J, 0.2S, 1.6E	4 mi SE. of Honeoye	Edward Hipps	1947	1,620	Drl	104	86	6	20	West Falls formation	64	2	H	Bedrock overlain by layer of gravel 20 ft thick.
Ot 776	10J, 3.8S, 2.6E	6 mi NW. of Naples	Marion Gleeson	--	1,780	Drl	80	--	6	--	--	20	3	H	
Ot 777	10J, 4.8S, 3.0E	5 mi NW. of Naples	M. Hale	1948	1,760	Drl	108	108	8	--	Pleistocene sand and gravel	70	7	H	(b). Well has been pumped at 7 gpm for 8 hrs. Temp 48°F, 11/13/48.
Ot 778	10J, 7.8S, 3.5E	2 mi NW. of Naples	Leroy Cool	1947	1,460	Drl	78	62	6	60	West Falls formation	40	12	H	
Ot 779	10J, 9.0S, 3.3E	1½ mi W. of Naples	E. Herrick	1947	1,080	Drl	37	23	6	22	West Falls formation (Hatch shale member)	12	2	H	Well yields some flammable gas. Bedrock overlain by layer of gravel 22 ft thick. Temp 50°F, 11/15/48.
Ot 780	10J, 7.3S, 1.4E	4 mi NW. of Naples	William Wohlschlegel	1948	1,040	Drl	18	18	6	--	Pleistocene sand and gravel	6	15	H	
Ot 781	10J, 10.2S, 4.6E	1 mi S. of Naples	Foldine Fox	1943	940	Drl	205	205	6	--	Pleistocene sand	--	--	U	Well ended in quicksand.
Ot 782	10J, 11.9S, 2.0E	4 mi SW. of Naples	Ray Merrill	--	1,360	Drl	45	45	6	--	Pleistocene sand and gravel	30	15	H	(b). Temp 49°F, 11/15/48.
Ot 783	10J, 9.7S, 5.1E	Naples	J. Rectenwald	1947	780	Drl	200	24	8	--	--	3	--	O	Drilled for gas.
Ot 784	10J, 8.6S, 6.0E	do.	Granby and Hemenway Gas Co.	1935	720	Drl	1,235	1,235	5 5/8 to 4¼	13	--	--	--	O	Do.
Ot 786	9K, 6.7S, 5.4E	4 mi S. of Clifton Springs	Village of Clifton Springs	1924	880	Drl	205	76	6	--	Marcellus shale and Onondaga limestone	--	4	U	Drilled for supplemental supply. Has yielded 4 gpm for 96 hrs. Not used because of inadequate yield. Spring Ot 10Sp on property.
Ot 787	10J, 6.1S, 4.1E	3½ mi N. of Naples	H. H. Ball	1946	1,480	Drl	73	26	6	25	West Falls formation	7	5	Al	Temp 48°F, 11/17/48.
Ot 788	10J, 11.3S, 3.0E	2 3/4 mi SW. of Naples	E. C. Lyons	--	1,200	Drl	100+	100+	6	--	Pleistocene sand and gravel	60	2	Adl	

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 789	10J, 10.8S, 5.9E	1 3/4 mi SE. of Naples	L. Coons	--	1,420	Drl	55	55	6	--	Pleistocene sand and gravel	50	5±	H	
Ot 790	10J, 10.5S, 6.5E	2 mi SE of Naples	Hyland Gillett	--	1,420	Drv	27	27	1¼	--	Pleistocene sand	8	5±	H	
Ot 791	10J, 9.6S, 2.1E	3 mi W. of Naples	Charles Payne	--	1,480	Dug	25	25	36	--	Pleistocene deposits	21	--	Adl	Supplies 3 people and 15 livestock.
Ot 792	10J, 8.0S, 0.8E	4½ mi W. of Naples	Babbin and Harmon	--	1,940	Drl	110	85	6	85	Wiscoy sandstone	80	1	H	
Ot 805	9J, 13.7S, 7.7E	2 mi E. of Bristol Center	L. C. Webster	--	1,350	Drl	30	--	6	4	Sonyea formation	--	--	H	(a). Supplies two summer houses.
Ot 809	9J, 16.2S, 10.5E	3½ mi W. of Rushville	Earl Riefsteck	1949	850	Drl	54	12	6	0	Genesee formation	--	2	UH	(a). Water contains hydrogen sulfide.
Ot 813	10J, 3.1S, 7.2E	6 3/4 mi N. of Naples	R. H. Hawks	1942	720	Drl	87	60	6	60±	do.	--	--	H	(a). At another well on property, flammable gas reported at depth of 75 ft.
Ot 815	9J, 7.1S, 9.6E	2½ mi NW. of Canandaigua	Marion Case	1948	840	Drl	183	136	6	136	Ludlowville and Skaneateles shales	40	13	Al	(a). Supplies 200 livestock. Dynamited at depth of 132 ft. Water contains hydrogen sulfide.
Ot 818	9J, 1.1S, 6.2E	1½ mi E. of Victor	F. Twitchell	1948	550	Drl	43	13	6	17	Camillus shale	16	27	--	
Ot 819	9J, 9.7S, 5.0E	3 mi SE. of Holcomb	Carl Gerhard	1948	1,060	Drl	200	20	6	20	Genesee formation, Tully limestone, and Moscow and Ludlowville shales	46	--	--	
Ot 821	9K, 4.0S, 1.5E	3/4 mi S. of Shortsville	Walter Colf	1949	660	Drl	26	13	6	13	Onondaga limestone	10	10	--	(a).
Ot 822	9K, 5.8S, 0.7E	3½ mi NE. of Canandaigua	Paul Walker	1949	700	Drl	130	56	6	56	Skaneateles and Marcellus shales	25	--	--	(a) (b).
Ot 824	9K, 0.7S, 5.7E	2 mi N. of Clifton Springs	Ralph Sleight	1949	565	Drl	57	53	6	53	Camillus shale	37	5	--	(b). Two other wells on property, 104 ft and 107 ft deep respectively, produce "black sulfur water" (see remarks for well Ot 219).
Ot 825	9J, 1.3S, 3.2E	1½ mi W. of Victor	Francis Barry	1949	700	Drl	186	174	6	174	Cobleskill dolomite and Bertie limestone	61	2	Adl	
Ot 826	9J, 2.5S, 1.2E	3 3/4 mi SW. of Victor	Christopher Hummel	1949	800	Drl	156	156	6	--	Pleistocene sand and gravel	95	3	Adl	
Ot 827	9J, 2.5S, 1.1E	do.	Ernest Meyers	1949	800	Drl	136	136	6	--	do.	73	30	--	
Ot 828	9J, 1.2S, 3.5E	1 mi W. of Victor	William English	1949	680	Drl	184	184	6	184	do.	70	15	--	Well drilled inside dug well 38 ft deep.
Ot 829	9J, 11.0S, 8.3E	4 mi SW. of Canandaigua	Andrew Burt	1949	1,140	Drl	147	64	6	64	Genesee formation	25	1	--	
Ot 830	9J, 16.3S, 9.1E	8½ mi S. of Canandaigua	Victor Logan	1949	700	Drl	147	10	6	0	Moscow shale	61	12	--	
Ot 831	9J, 13.8S, 5.6E	½ mi S. of Bristol Center	Horace Cooper	1949	940	Drl	45	40	6	40	Genesee formation	30	12	--	Water contains hydrogen sulfide.
Ot 832	9J, 8.2S, 6.8E	4½ mi W. of Canandaigua	W. A. Gill	1949	950	Drl	150	64	6	64	Ludlowville and Skaneateles shales	27	1	--	(a).
Ot 837	9J, 2.3S, 12.2E	2¼ mi NW. of Shortsville	John Drost	1949	620	Drl	41	26	6	25	Cobleskill dolomite	12	10	A	
Ot 838	9K, 6.9S, 11.3E	3½ mi NW. of Geneva	Carl Trickler	1949	625	Drl	175	36	6	35	Skaneateles and Marcellus shales, and Onondaga limestone	100	20	A	(b). Has been pumped at 20 gpm for 10 hrs.
Ot 839	9J, 2.3S, 2.9E	2 mi SW. of Victor	John Syracusa	1955	790	Drl	270	170	8	170	Onondaga limestone, Cobleskill dolomite, and Bertie limestone	157.0 10/14/55	275	Ips	Has been pumped at 275 gpm for 4 hrs. Yielded some flammable gas when new. Water used to wash sand and gravel. Well Ot 1014 on property.
Ot 840	9J, 2.3S, 12.9E	1 mi W. of Manchester	Village of	1951	600	Drl	--	--	--	--	--	--	--	UM	(a). Water used only in emergencies because hardness is 660 ppm. Wells Ot 224 and Ot 841 on property.

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 841	9J, 2.3S, 12.9E	1 mi W. of Manchester	Village of Manchester	1951	600	Drl	27	27	18	27	Pleistocene sand	--	75	UM	(a) (b). Finished with screen and gravel pack.
Ot 842	9K, 14.2S, 5.6E	Gorham	Gorham Central School	1955	890	Drl	31	31	8	--	Pleistocene sand and gravel	6	25	Cs	(a) (b). Finished with 5 ft length of screen. Has been pumped at 25 gpm for 14 hrs.
Ot 844	9J, 0.1N, 3.2E	2 mi NW. of Victor	Robert Montgomery	1955	600	Drl	56	56	6	--	do.	flows	4+	Csp	Flows at 4 gpm. Supplies restaurant. Water has relatively high iron content and contains hydrogen sulfide.
Ot 845	9J, 0.4N, 2.4E	3 mi NW. of Victor	Gordon Phillips	1955	590	Drl	102	102	6	--	do.	48	6	H	
Ot 846	9J, 6.2S, 10.2E	2 mi NW. of Canandaigua	Daniel Farchione	1956	770	Drl	61	53	6	53	Skaneateles shale	3	40	H	(b). Water contains hydrogen sulfide.
Ot 847	9J, 0.5S, 3.1E	1½ mi NW. of Victor	Robert O'Beirne	1956	570	Drl	73	47	6	45	Salina group	flows	50	H	(b). Flows at rate of 10 gpm. Static water level is more than 6 ft above land surface. Water contains hydrogen sulfide.
Ot 860	9J, 1.7S, 7.7E	3½ mi E. of Victor	Everett Blazey	1950	630	Drl	39	32	6	32	Cobleskill dolomite	10	10	H	
Ot 861	9J, 1.6S, 7.4E	2 3/4 mi E. of Victor	DiPacific's Restaurant	1951	620	Drl	64	10	6	10	Cobleskill dolomite and Bertie limestone	12	5	Csp	Supplies restaurant. Was considered finished when 47 ft deep. Was deepened to 64 ft in 1951 after 2 years use.
Ot 862	9J, 1.4S, 7.2E	2½ mi E. of Victor	Walter Mace	1953	610	Drl	35	24	6	24	do.	19	30	H	
Ot 863	9J, 1.5S, 7.4E	2 3/4 mi E. of Victor	I. R. Shoemaker	1950	630	Drl	55	8	6	4	do.	29	40	Cs	Supplies gas station.
Ot 864	9J, 0.5S, 7.4E	2 3/4 mi NE. of Victor	Richard Goers	--	610	Drl	33	28	6	28	Bertie limestone	19	6	--	
Ot 865	9J, 0.4S, 6.7E	2 mi NE. of Victor	Osborn Hunt	--	570	Dug	20	20	36	--	Pleistocene sand and gravel	15	500	--	Drawdown 5 ft after pumping 650 gpm for 2 hrs. Supplies 5,000 to 10,000 gpd to trailer park.
Ot 866	9J, 0.5S, 6.8E	2½ mi NE. of Victor (Interchange No. 44)	N. Y. State Thruway Authority	--	580	Drl	26	18	6	18	Camillus shale	12	10	Cs	(a). Originally supplied 10 to 15 trailers in Matteson's Trailer Park. Wells Ot 867 and Ot 1122 nearby.
Ot 867	9J, 0.6S, 6.9E	do.	do.	1950	580	Drl	190	30	6	30	do.	--	--	U	Well abandoned because it produced "black sulfur water" (see remarks for Well Ot 219).
Ot 868	9J, 1.5N, 3.0E	1½ mi NE. of Fishers	Harry's Trailer Park	1948	710	Drl	117	117	6	--	Pleistocene sand and gravel	73	15+	Cs	(a). Supplies trailer park. Another well of similar construction is located on property.
Ot 869	9J, 0.7N, 1.9E	Fishers	John Fowler	1955	560	Drl	102	102	6	90	Pleistocene sand	54	15	H	(a).
Ot 870	9J, 1.5N, 3.0E	1½ mi NE. of Fishers	Mobile Gas Station	1955	710	Drl	193	193	5	--	Pleistocene sand and gravel	133	4	Cs	(b). Supplies gas station.
Ot 871	9J, 0.0N, 1.5E	3/4 mi S. of Fishers	Grace Hughes	1955	550	Drl	35	35	5 5/8	--	do.	3	15	H	(b).
Ot 872	9J, 1.7S, 6.2E	1½ mi E. of Victor	Clarence Ernissee	1953	580	Drl	36	16	6	15	Bertie limestone	14	4	H	Contaminated by gasoline.
Ot 873	9J, 1.3S, 6.1E	do.	Alfred Tyson	1954	580	Drl	32	--	6	8	do.	14	4	H	Do.
Ot 874	9J, 0.7N, 1.6E	Fishers	Lifetime Distributors, Inc.	1951	510	Drl	90	90	--	--	Pleistocene sand and gravel	60	--	Cs	(a). Water has an unpleasant taste.
Ot 875	9J, 1.4S, 5.4E	Victor	Fred Murray	1952	560	Drl	39	24	6	24	Salina group	16	6	H	
Ot 876	9J, 2.1S, 4.5E	1 mi S. of Victor	Thomas Doran	1952	700	Drl	53	38	6	38	Onondaga limestone	38	3	H	
Ot 877	9J, 2.1S, 4.6E	do.	Ralph Verhurst	1950	710	Drl	95	38	6	38	Onondaga limestone and Cobleskill dolomite	82	20	A	
Ot 878	9J, 2.2S, 4.5E	do.	Walter Barry	1950	730	Drl	65	57	6	57	Onondaga limestone	41	10	A	

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 880	9J, 2.6S, 4.5E	1½ mi S. of Victor	Chaster Mapes	1954	820	Drl	158	84	6 to 4	84	Onondaga limestone and Cobleskill dolomite	--	3	--	(b).
Ot 881	9J, 2.6S, 4.4E	1½ mi SW. of Victor	Albert Green	1952	770	Drl	85	85	6	--	Pleistocene sand and gravel	30	33	--	
Ot 882	9J, 2.6S, 4.6E	1½ mi S. of Victor	Joseph Calcagno	1952	820	Drl	94	94	6	--	do.	60	5	--	
Ot 883	9J, 3.3S, 4.5E	2 mi S. of Victor	C. K. Southgate	1954	805	Drl	175	--	6	148	Onondaga limestone	85	3	--	(b).
Ot 884	9J, 2.6S, 5.2E	1½ mi SE. of Victor	Harold Pierce	1953	700	Drl	58	--	6	--	Pleistocene deposits	34	2	--	(b).
Ot 885	9J, 2.5S, 6.2E	2 mi SE. of Victor	John Racinowski	1951	680	Drl	44	38	6	38	Onondaga limestone	22	15	--	
Ot 886	9J, 4.3S, 7.1E	5¼ mi NW. of Canandaigua	Harold Purdy	1952	740	Drl	145	75	6	75	Marcellus shale and Onondaga limestone	--	10	A	(b).
Ot 887	9J, 6.7S, 7.5E	4 mi NW. of Canandaigua	William Parker and Erwin Hallock	1953	830	Drl	125	66	6	66	Skaneateles shale	25	2	--	
Ot 888	10J, 3.0N, 0.3W	3/4 mi E. of Honeoye	Honeoye Central School	1949	825	Drl	27	27	--	--	Pleistocene sand	3	100	Cs	Supplies 500 pupils. Finished with slotted casing. Another well on property is unused because of low yield.
Ot 889	10J, 3.0N, 0.6W	Honeoye	Honeoye Water District	1953	804	Drl	43	41	12	--	Pleistocene sand and gravel	+4	125	M	(a) (b). Drawdown 21 ft after pumping 125 gpm for 36 hrs. Finished with 5 ft length of 8-inch screen. A test well drilled 0.2 mi to west yielded very hard water.
Ot 890	9J, 1.6S, 7.3E	2½ mi E. of Victor	J. R. Shoemaker	1955	620	Drl	61	6	6	6	Cobleskill dolomite and Bertie limestone	14	20	Cs	Supplies trailer park.
Ot 891	9J, 1.6S, 7.4E	2 3/4 mi E. of Victor	Leslie Case	1955	630	Drl	50	12	6	12	do.	7	10	--	
Ot 892	9J, 1.7S, 6.7E	2 mi E. of Victor	Fred Northrup	1955	610	Drl	25	16	6	16	Cobleskill dolomite	6	30	H	
Ot 893	9J, 1.1S, 6.4E	do.	John Conover	--	570	Drl	68	34	6	34	Camillus shale	16	5	--	Drilled inside dug well 22 ft deep.
Ot 894	9J, 1.7S, 6.8E	2½ mi E. of Victor	Ralph Richardson	1952	620	Drl	48	3	6	2	Cobleskill dolomite and Bertie limestone	34	15	--	
Ot 895	9J, 1.7S, 6.7E	do.	Fred Clark	1950	620	Drl	47	15	6	15	do.	21	5	--	
Ot 896	9J, 1.7S, 7.2E	do.	I. B. Estes	1952	620	Drl	50	12	6	12	do.	--	2	--	
Ot 897	9J, 1.7S, 7.2E	do.	Carlton Stone	1950	620	Drl	43	30	6	30	Cobleskill dolomite	15	3	--	
Ot 898	9J, 3.2S, 8.2E	5½ mi NW. of Canandaigua	Thomas Dawson	1951	680	Drl	42	35	6	35	Onondaga limestone	--	5	--	Drilled inside dug well 28 ft deep.
Ot 899	9J, 3.1S, 8.1E	do.	Floyd Wells	1952	680	Drl	31	31	6	--	Pleistocene deposits	8	6	--	
Ot 900	9K, 1.7S, 1.0E	½ mi N. of Manchester (Interchange No. 43)	N. Y. State Thruway Authority	1953	555	Drl	139	11	6	11	Camillus shale	+8.46 1/ 1/56	30	O	(a) (b). Drawdown 124 ft after pumping 30 gpm for 8 hrs. Water unused because of poor quality. U. S. Geol. Survey observation well 5/25/55 to date. Temp 50°F, 9/1/53.
Ot 901	9J, 2.9S, 9.3E	5 mi N. of Canandaigua	Alton Smith	1949	660	Drl	31	15	6	15	Onondaga limestone	12	10	--	(b).
Ot 902	9J, 2.8S, 9.3E	do.	Lawrence Foster	1950	660	Drl	36	21	6	21	do.	10	6	H	
Ot 903	9J, 2.5S, 9.4E	5½ mi N. of Canandaigua	Harold Button	1951	640	Drl	29	9	6	0	do.	10	4	--	
Ot 904	9J, 1.6S, 11.4E	6 mi N. of Canandaigua	N. B. Dunning	1951	600	Drl	30	--	6	19	Bertie limestone	16	10	--	
Ot 905	9J, 1.5S, 11.4E	do.	Raymond Smith	1951	600	Drl	30	22	6	22	do.	--	10	--	

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 906	9J, 1.3S, 11.4E	6½ mi N. of Canandaigua	H. J. Knowlton	1950	600	Drl	37	25	6	--	Bertie limestone	20	15	H	Drilled inside dug well 19 ft deep.
Ot 907	9J, 1.2S, 11.4E	do.	Paul Goodenow	1954	600	Drl	60	26	6	26	Salina group	18	12	A	
Ot 908	9J, 4.2S, 11.3E	3½ mi N. of Canandaigua	Camiel Mortier	1950	680	Drl	104	38	6	38	Onondaga limestone	63	12	A	
Ot 909	9J, 5.2S, 11.0E	2½ mi N. of Canandaigua	Frank Schrader	1952	780	Drl	62	62	6	--	Pleistocene sand	10	10	--	(b).
Ot 910	9J, 5.3S, 11.0E	do.	Benjamin Emerson	1951	770	Drl	97	32	6	32	Skaneateles and Marcellus shales	14	3/4	--	Drilled inside dug well 16 ft deep. Water contains hydrogen sulfide.
Ot 911	9J, 5.3S, 10.3E	2½ mi N. of Canandaigua	Daniel Olsson	1950	760	Drl	70	--	6	--	do.	12	4	--	Well was considered finished at depth of 45 ft in 1948. Was deepened to 70 ft in 1950.
Ot 912	9J, 5.3S, 10.0E	2½ mi NW. of Canandaigua	Ernest Johnson	1955	780	Drl	118	38	6	37	do.	15	1	--	(b). Water contains hydrogen sulfide.
Ot 913	9J, 5.2S, 9.9E	3 mi NW. of Canandaigua	Herbert Nash	--	770	Drl	119	28	6	28	do.	50	2	H	
Ot 914	9J, 4.5S, 9.6E	3½ mi NW. of Canandaigua	Stewart North	1952	740	Drl	123	--	6	17	Skaneateles and Marcellus shales, and Onondaga limestone	113	5	H	(a). Well was considered finished and used in 1948 when at depth of 93 ft. Deepened to 123 ft in 1952. Water contains hydrogen sulfide.
Ot 915	9J, 6.3S, 11.0E	1 mi N. of Canandaigua	Charles Figenscher	1954	800	Drl	23	23	6	--	Pleistocene deposits	7	2/3	--	
Ot 916	9J, 6.2S, 11.1E	do.	Kenneth Bundy	1951	810	Drl	84	--	6	69	Skaneateles shale	10	2	--	
Ot 917	9J, 7.1S, 12.0E	1 mi NE. of Canandaigua	Roy Poole	1954	780	Drl	38	4	6	4	Ludlowville and Skaneateles shales	8	30	H	
Ot 918	9J, 7.1S, 12.0E	do.	Harry Bennett	1953	780	Drl	22	10	6	6	do.	1½	10	--	Water contains hydrogen sulfide.
Ot 919	9J, 6.8S, 12.2E	do.	James Murphy	1954	770	Drl	52	--	6	18	Skaneateles shale	--	2	--	Do.
Ot 920	9J, 7.0S, 9.4E	2 mi NW. of Canandaigua	Marion Case	1952	800	Drl	35	32	6	--	Pleistocene deposits	8	1¼	--	
Ot 921	9J, 6.8S, 12.2E	1½ mi NE. of Canandaigua	Albert Hicks	1953	770	Drl	30	--	6	13	Skaneateles shale	--	4	--	
Ot 922	9J, 8.5S, 5.7E	2½ mi SE. of Holcomb	Grover Murray	1952	880	Drl	28	28	6	28	Pleistocene sand and gravel	flows	10	A	(b). Water has relatively high iron content.
Ot 923	9J, 13.4S, 5.5E	Bristol Center	Herbert Rogers	1951	940	Drl	91	91	6	--	Pleistocene sand	--	10	--	
Ot 924	9J, 13.4S, 5.5E	do.	Maud Mansfield	1951	940	Drl	84	84	6	--	Pleistocene deposits	--	2	--	
Ot 925	9J, 13.4S, 5.5E	do.	James Thompson	1951	960	Drl	35	35	6	--	do.	13½	5	U	Water contains hydrogen sulfide.
Ot 926	9J, 13.3S, 5.5E	do.	Robert McKinney	1951	960	Drl	--	--	--	40	Genesee formation	12	4	--	Do.
Ot 927	9J, 8.1S, 5.1E	1 3/4 mi SE. of Holcomb	Lewis Adams	1950	880	Drl	130	87	6	86	Ludlowville shale	10	4	AH	
Ot 928	9J, 8.1S, 4.7E	1½ mi SE. of Holcomb	Carl Pickering	1952	940	Drl	63	22	6	21	do.	--	1	--	
Ot 929	9J, 8.0S, 4.6E	1½ mi S. of Holcomb	Karl Clutter	1952	940	Drl	50	--	6	22	do.	0	1	--	(b).
Ot 930	9J, 7.7S, 4.5E	1 mi S. of Holcomb	D. B. Hudson	1951	920	Drl	92	60	6	60	do.	16	3	--	Yields salty water.
Ot 931	9J, 5.0S, 5.2E	2 mi NE. of Holcomb	Paul Birdsall	1950	780	Drl	105	105	6	--	Pleistocene deposits	--	--	U	Dry hole. Casing removed and well destroyed.
Ot 932	9J, 5.7S, 4.9E	1¼ mi NE. of Holcomb	Samuel Freeman	1951	800	Drl	75	75	6	--	Pleistocene sand and gravel	10	--	--	
Ot 933	9J, 6.6S, 3.2E	1 mi W. of Holcomb	W. A. Luke	1950	880	Drl	27	26	6	--	do.	flows	33	--	Water contains hydrogen sulfide.
Ot 934	9J, 2.9S, 3.5E	2 mi SW. of Victor	Arthur Brown	1951	720	Drl	67	63	6	63	Onondaga limestone	57	6	--	(b).

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 935	9J, 3.2S, 1.6E	3½ mi SW. of Victor	Dennis Donovan	1949	870	Drl	181	181	6	--	Pleistocene sand	65	30+	A	(b).
Ot 936	9J, 2.7S, 2.7E	2½ mi SW. of Victor	Warren Dillman	1949	720	Drl	81	81	6	--	Pleistocene sand and gravel	31	10	A	
Ot 937	9J, 3.2S, 1.3E	4 mi SW. of Victor	T. W. Braun	1952	980	Drl	240	--	6	--	Pleistocene sand	200	10	A	
Ot 938	9J, 9.7S, 12.7E	2½ mi SE. of Canandaigua	Maynard Cooper	1952	700	Drl	31	--	6	--	Pleistocene sand and gravel	10	15	--	
Ot 939	9J, 9.7S, 12.8E	do.	John Hook	1952	700	Drl	37	37	6	--	Pleistocene deposits	--	4	--	
Ot 940	9J, 10.3S, 12.6E	3 mi SE. of Canandaigua	John Rankin	1953	710	Drl	98	--	6	26	Ludlowville and Skaneateles shales	24	2	--	(b).
Ot 941	9J, 10.4S, 12.6E	do.	The Akers	1952	700	Drl	82	20	6	20	do.	4	--	--	
Ot 942	9J, 9.5S, 12.6E	do.	Joseph Youst	1953	710	Drl	80	22	6	22	Ludlowville shale	1	1½	--	
Ot 943	9J, 12.9S, 12.6E	5¼ mi SE. of Canandaigua	Roy Frazer	1954	860	Drl	80	43	6	43	Moscow and Ludlowville shales	20	1	--	
Ot 944	9J, 13.0S, 12.7E	5½ mi SE. of Canandaigua	R. J. Johnson	1952	860	Drl	117	74	6	74	do.	--	15	--	
Ot 945	9J, 15.0S, 11.1E	3½ mi NW. of Rushville	Ralph Ruff	1953	710	Drl	79	79	6	--	Pleistocene deposits	--	--	--	Yielded "black sulfur water" (see remarks for well Ot 219) at depth of 40 ft. Water sealed off with casing, but casing was later dynamited at depth of 40 ft to increase supply.
Ot 946	10J, 4.7S, 0.6E	6½ mi NW. of Naples	William Meyers	--	840	Drl	91	91	6	--	Pleistocene sand and gravel	12	7	H	(b).
Ot 947	10J, 1.4S, 7.7E	8½ mi NE. of Naples	C. F. Burnett, Jr.	1954	700	Drl	170	--	6	40	Genesee formation, Tully limestone, and Moscow shale	--	1	--	(b). Yields salty water.
Ot 948	9J, 17.0S, 8.8E	9½ mi S. of Canandaigua	Edward Watson	1950	780	Drl	85	16	6	--	do.	21	8	--	
Ot 949	9J, 16.4S, 8.4E	9 mi S. of Canandaigua	Harold Johnson	1950	1,160	Drl	65	35	6	--	Sonyea formation	22	20	--	
Ot 950	9J, 16.4S, 8.3E	do.	C. W. Middlebrook	1945±	1,180	Drl	78	34	6	--	do.	20	15	A	
Ot 951	9J, 16.0S, 8.9E	8½ mi S. of Canandaigua	Gladys Welch	1950	880	Drl	112	23	6	23	Genesee formation	37	5	--	(b).
Ot 952	9J, 15.2S, 8.6E	8 mi S. of Canandaigua	Stuart Middlebrook	1953	1,110	Drl	142	62	6	62	--	--	--	U	Yield insufficient for domestic use. Yielded flammable gas at depth of 135 ft.
Ot 953	9J, 13.0S, 8.7E	6 mi SW. of Canandaigua	Karl Manz	--	1,040	Drl	141	28	6	28	Genesee formation	30	2	--	
Ot 954	9J, 8.6S, 10.4E	1¼ mi SW. of Canandaigua	R. D. Jenkins	1952	845	Drl	128	79	6	79	Ludlowville shale	40	1	--	
Ot 956	9J, 11.6S, 7.7E	5 mi SW. of Canandaigua	Fred Hilliker	1953	1,110	Drl	70	20	6	20	Genesee formation	37	--	A	
Ot 957	9J, 11.6S, 6.4E	2 mi NE. of Bristol Center	Frank Connelly	1951	1,100	Drl	51	19	6	19	do.	--	3	--	Water contains hydrogen sulfide.
Ot 958	9J, 12.4S, 8.5E	5½ mi SW. of Canandaigua	John Spittle	1952	1,040	Drl	200	--	6	43	do.	26	2	A	
Ot 959	9J, 12.4S, 8.8E	do.	Charles Yarger	1952	1,030	Drl	41	37	6	37	do.	16	3	--	
Ot 960	9J, 12.7S, 8.8E	do.	Bernard Van Troost	1950	1,010	Drl	76	52	6	52	do.	12	3	H	
Ot 961	9J, 13.3S, 7.6E	2 mi E. of Bristol Center	Henry Brockmyre	1950	1,310	Drl	92	46	6	46	Sonyea formation	1½	1	--	
Ot 962	9J, 12.6S, 8.8E	5½ mi SW. of Canandaigua	Lyndon Quayle	--	1,010	Drl	84	--	6	64	Genesee formation	20	1	H	(b). Well yielded flammable gas when drilled.

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 963	9J, 12.5S, 8.8E	5½ mi SW. of Canandaigua	Herbert Barnes	1949	1,020	Drl	48	41	6	35	Genesee formation	13	4	H	Temp 48°F, Nov. 1949.
Ot 964	9J, 6.0S, 2.6E	1½ mi NW. of Holcomb	W. R. Stewart	--	930	Dug	6	6	36	--	Pleistocene deposits	4.12 5/12/55	--	H	Water has relatively high iron content. Temp 47°F, 5/12/55.
Ot 965	9K, 6.2S, 12.2E	3½ mi NW. of Geneva	Harry Fields	1949	540	Drl	37	37	6	--	do.	10	2	H	(b).
Ot 966	9K, 8.2S, 11.3E	2½ mi NW. of Geneva	James White	1949	680	Drl	104	76	6	65	Skaneateles shale	20	2	H	(b). Water contains hydrogen sulfide.
Ot 967	9K, 8.4S, 11.9E	2 mi NW. of Geneva	Albert Sanford	1953	660	Drl	52	52	6	--	Pleistocene deposits	12	2	--	
Ot 968	9L, 4.6S, 0.3E	4½ mi N. of Geneva	Nathan Oaks	1953	460	Drl	66	66	6	--	Pleistocene sand and gravel	34	20	H	(b). Drilled inside dug well 18 ft deep.
Ot 969	9K, 4.8S, 12.1E	3 mi SE. of Phelps	Frank Oaks	1949	500	Drl	50	14	6	12	Onondaga limestone and Cobleskill dolomite	11	1	H	
Ot 970	9K, 3.7S, 12.1E	2½ mi SE. of Phelps	Lester Green	1953	460	Drl	69	69	6	--	Pleistocene sand and gravel	30	15	Csp	(b). Supplies restaurant.
Ot 971	9L, 3.7S, 0.1E	5½ mi N. of Geneva	John W. Gifford	1953	450	Drl	49	49	6	--	Pleistocene deposits	--	--	--	Drilled inside dug well 35 ft deep.
Ot 972	9L, 1.5S, 1.2E	7½ mi N. of Geneva	Albert Oaks	1954	460	Drl	40	29	6	27	Camillus shale	30	10	H	(b).
Ot 973	9L, 4.2S, 1.8E	5 mi N. of Geneva	Harold Osborne	1954	540	Drl	120	118	6	115	Cobleskill dolomite	73	2	H	(b).
Ot 974	9L, 4.3S, 1.9E	do.	Raymond Hurlburt	1951	535	Drl	170	125	6	123	Cobleskill dolomite and Salina group	90	1	H	(b). Water below 160 ft contains hydrogen sulfide.
Ot 976	9L, 5.6S, 1.2E	3½ mi N. of Geneva	Clara M. Skinner	1953	470	Drl	75	75	6	--	Pleistocene sand	15	20	H	(b).
Ot 977	9K, 2.3S, 12.1E	2½ mi E. of Phelps	Lyman Fisher	1949	500	Drl	43	--	6	--	do.	10	20	A	(b).
Ot 978	9K, 2.3S, 12.5E	3 mi E. of Phelps	William Fisher	1949	500	Drl	54	--	6	--	do.	20	20	A	(b).
Ot 979	9K, 1.1S, 8.4E	2½ mi NW. of Phelps	Martha Fridley	1952	500	Drl	35	30	6	6	Salina group	15	23	H	
Ot 980	9K, 1.2S, 7.8E	do.	Samuel Walter	1953	530	Drl	47	29	6	7	Cobleskill dolomite and Bertie limestone	28	20	H	
Ot 981	9K, 2.7S, 7.0E	1 mi E. of Clifton Springs	Charles MacComber	1955	630	Drl	48	--	6	9	Onondaga limestone	8	4	--	
Ot 982	9K, 2.7S, 7.5E	1½ mi E. of Clifton Springs	Hutchinson	1953	590	Drl	42	--	6	35	do.	15	20	H	(b).
Ot 983	9K, 4.4S, 7.8E	2½ mi SW. of Phelps	B. F. Butler	1954	680	Drl	85	12	6	8	Marcellus shale and Onondaga limestone	33	2/3	H	
Ot 984	9K, 4.2S, 10.9E	1 3/4 mi SE. of Phelps	George Madagan	1948±	620	Drl	176	37	6	33	Onondaga limestone, Cobleskill dolomite, and Bertie limestone	100	1	A	
Ot 985	9L, 5.2S, 0.1E	4 mi N. of Geneva	Norman Walker	1949	480	Drl	87	87	6	--	Pleistocene sand and gravel	20	40	H	(b).
Ot 986	9L, 6.7S, 0.2E	2½ mi NW. of Geneva	Vincent Cardinele	1954	500	Drl	82	18	6	18	Onondaga limestone	30	10	H	(b).
Ot 987	9L, 7.8S, 0.3E	1½ mi NW. of Geneva	W. R. Seymour	1953	500	Drl	66	65	6	--	do.	25	4	H	
Ot 988	9J, 3.8S, 8.7E	4½ mi NW. of Canandaigua	Lee Fuller	1952	700	Drl	52	25	6	25	Marcellus shale and Onondaga limestone	2	3/4	--	(b).
Ot 989	9K, 5.9S, 1.0E	3¼ mi NE. of Canandaigua	Irving Jones	1952	710	Drl	50	50	6	--	Pleistocene sand and gravel	2	12	H	

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 990	9K, 5.7S, 0.8E	3¼ mi NE. of Canandaigua	Floyd Alexander	1955	700	Drl	124	63	6	63	Skaneateles shale	10	5	--	Drilled in dug well 14 ft deep. Well drilled to 69 ft in 1953. Deepened in 1955 to eliminate movement of sand into the well.
Ot 991	9K, 3.2S, 0.1E	1½ mi W. of Shortsville	James Masyln	1955	630	Drl	26	--	6	--	Pleistocene sand and gravel	9	10	--	(b).
Ot 992	9K, 0.1N, 2.1E	3½ mi N. of Shortsville	Harold Sprague	1951	570	Drl	70	--	6	15	Camillus shale	12	20	--	(b).
Ot 993	9K, 4.2S, 1.3E	1 mi S. of Shortsville	Roland Nudd	1951	680	Drl	70	54	6	30	Onondaga limestone	--	3	A	(b).
Ot 994	9K, 3.9S, 3.3E	2 mi SE. of Shortsville	Harold Lytle	1954	700	Drl	30	--	6	24	do.	15	10	--	(b). Drilled in dug well 16 ft deep.
Ot 995	9K, 3.8S, 4.0E	2¼ mi SW. of Clifton Springs	G. F. DeSchepper	1952	670	Drl	25	10	6	9	do.	--	6	--	Water contains hydrogen sulfide.
Ot 996	9K, 3.8S, 4.1E	do.	Willard Deal	1950	680	Drl	22	10	6	3	do.	11	10	H	
Ot 997	9K, 3.8S, 4.6E	1½ mi SW. of Clifton Springs	Hanry Converse	1951	670	Drl	20	10	6	4	do.	10	10	--	
Ot 998	9K, 3.5S, 5.0E	1 mi SW. of Clifton Springs	James H. Piper	1952	640	Drl	32	--	6	2	do.	20	15	--	Well was considered finished at a depth of 18 ft in May 1952. Deepened to 32 ft in Sept. 1952.
Ot 999	9K, 2.7S, 4.5E	1½ mi W. of Clifton Springs	Charles Tears	1949	590	Drl	31	31	6	30	Pleistocene deposits, Onondaga limestone, and Cobleskill dolomite	8	10	A	(b).
Ot 1000	9K, 5.8S, 0.8E	3½ mi NE. of Canandaigua	Methodist Parsonage Hamlet of Chapin	1954	700	Drl	87	--	6	51	Skaneateles and Marcellus shales	20	3	--	
Ot 1001	9K, 6.0S, 0.5E	3 mi NE. of Canandaigua	Harold Burgess	1949	710	Drl	65	41	6	41	Skaneateles shale	30	5	H	(b). Well Ot 1002 also on property.
Ot 1002	9K, 6.0S, 0.5E	do.	do.	1953	710	Drl	46	46	6	--	Pleistocene sand	14	3	--	(b).
Ot 1003	9K, 5.9S, 2.2E	3 mi SE. of Shortsville	Peter Fredericks	1954	770	Drl	58	19	6	19	Skaneateles shale	20	15	--	
Ot 1004	9K, 6.0S, 3.4E	5½ mi NE. of Canandaigua	Adelbert Schutt	1952	790	Drl	62	--	6	55	do.	10	3	--	Water contains hydrogen sulfide.
Ot 1005	9K, 7.0S, 3.4E	5 mi E. of Canandaigua	Raymond Coon	1950	840	Drl	40	19	6	8	do.	11	18	--	Do.
Ot 1006	9K, 7.6S, 0.9E	2½ mi E. of Canandaigua	Howard Samuels	1954	780	Drl	92	--	6	56	do.	29	20	U	Drilled inside well 33 ft deep. Abandoned because of pollution.
Ot 1007	9K, 8.2S, 1.1E	3 mi E. of Canandaigua	Robert Pollock	1953	800	Drl	172	--	6	8	do.	25	1	U	Yield inadequate.
Ot 1008	9J, 8.2S, 7.1E	4½ mi W. of Canandaigua	Harry Clauss	1951	950	Drl	185	--	6	107	do.	85	½	Cs	(b). Supplies grocery store.
Ot 1009	9K, 0.3N, 5.0W	3½ mi NE. of Victor	Peter Yahn	1950	600	Drl	62	62	6	--	Pleistocene deposits	40	3	--	
Ot 1010	9J, 2.1N, 1.5E	1½ mi N. of Fishers	C. H. Strong, Jr.	--	680	Drl	326	326	6	--	Pleistocene sand	--	--	U	Well not screened. Yield inadequate. Spring Ot 44Sp, also on property, supplies domestic requirements.
Ot 1011	9J, 1.6N, 1.4E	3/4 mi N. of Fishers	Eugene Reich	1952	575	Drl	150	150	6	--	do.	--	--	U	Well not screened. Dry hole. Spring Ot 41Sp supplies domestic requirements.
Ot 1012	9J, 1.4N, 3.5E	3 mi NW. of Victor	Raymond Romeiser	1954	740	Drl	48	48	6	--	do.	20	5	--	
Ot 1013	9J, 0.3N, 3.9E	2 mi NW. of Victor	Kenneth Bliss	1954	810	Drl	216	200±	6 to 4	--	--	--	--	U	Yield inadequate. Penetrated bedrock at unknown depth. Water for uses other than drinking and cooking is obtained from nearby gravel-packed well 20 ft deep.
Ot 1014	9J, 2.3S, 2.1E	2 3/4 mi SW. of Victor	Hoadley Sand and Gravel Co., Inc.	1954	790	Drl	286	254	12	254	Onondaga limestone	--	300	Ips	Has been pumped at 300 gpm for 48 hrs. Water contained hydrogen sulfide when first drilled. Used to wash sand and gravel. Because water requirement is 1,200 gpm, used water is passed through two settling basins and reused. Well Ot 839 on property.

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 1015	9K, 2.5N, 4.6E	Port Gibson	Perry McKenney	1950	480	Drl	50	34	6	34	Camillus shale	28	½	H	
Ot 1017	9K, 1.8S, 0.5E	1½ mi NW. of Shortsville	Daniel Record	1953	570	Drl	133	40	6	40	Salina group	16	--	U	Water unused because of poor quality.
Ot 1018	9J, 1.7S, 8.2E	3½ mi E. of Victor	David Cannan	1949	620	Drl	33	33	6	--	Pleistocene sand and gravel	20	12	--	
Ot 1019	9K, 1.8S, 7.7E	3 mi E. of Victor	E. B. Potter	1951	620	Drl	45	45	6	--	Pleistocene sand	15±	20	H	(b).
Ot 1020	9J, 1.1S, 7.2E	2½ mi E. of Victor	E. R. Weigert	1951	600	Drl	169	28	6	28	Camillus shale	66	10	--	Water contains hydrogen sulfide.
Ot 1021	9J, 1.7S, 5.4E	1 mi SE. of Victor	Philip Carruba	1951	560	Drl	28	20	6	20	Bertie limestone	10	30	--	
Ot 1022	9J, 0.4S, 3.0E	2 mi NW. of Victor	Mildred Van Orman	1953	570	Drl	80	--	6	53	Salina group	flows	3	--	Well produces "black sulfur water" (see remarks for well Ot 219).
Ot 1023	9J, 0.2N, 3.0E	1½ mi SE. of Fishers	Harold Roy	1952	580	Drl	32	32	6	--	Pleistocene sand and gravel	flows	20	H	Flowed 10/18/57 at 3/4 gpm. Water relatively high in iron content.
Ot 1024	9J, 1.6S, 2.8E	2 mi W. of Victor	Robert F. Harrigan	1952	730	Drl	115	--	6	--	do.	70	10	--	
Ot 1027	9J, 8.4S, 8.4E	3 mi SW. of Canandaigua	Morris Rossier	1953	990	Drl	80	46	6	46	Ludlowville shale	24	2	--	
Ot 1028	9J, 6.7S, 3.4E	East Bloomfield	Lewis Neenan	1955	910	Drl	23	23	6	--	Pleistocene sand and gravel	flows	--	H	(b).
Ot 1029	9J, 6.6S, 1.7E	2½ mi W. of Holcomb	Lester Bennett	1951	1,000	Drl	82	82	6	--	do.	35	4	H	(b).
Ot 1030	9J, 4.9S, 0.4E	4 mi NW. of Holcomb	do.	1953	900	Drl	131	131	6	--	do.	60	7	H	(b).
Ot 1031	9J, 5.0S, 1.6E	3 mi NW. of Holcomb	do.	1950	900	Drl	98	98	6	--	do.	flows	20+	A	(b). Supplies mink ranch. Flows 6 gpm.
Ot 1032	10J, 10.8N, 0.9W	5 mi W. of Holcomb	George Marin	1951	960	Drl	95	95	6	--	do.	--	--	--	(b). Supplies motel. Located 50 ft north of Ot 1033.
Ot 1033	10J, 10.8N, 0.9W	do.	do.	1951	960	Drl	117	117	6	--	do.	60	4	--	Supplies motel.
Ot 1034	10J, 10.9N, 2.1W	6¼ mi W. of Holcomb	Edward Domville	1952	930	Drl	108	--	6	--	do.	30	15	--	Well was considered finished at depth of 82 ft in June 1952. Was deepened to 108 ft in July 1952.
Ot 1035	10J, 10.7N, 2.9W	7¼ mi W. of Holcomb	D. E. Barnes, Sr.	1952	750	Drl	70	70	6	--	do.	6	5	H	(b).
Ot 1036	10J, 10.8N, 0.9W	5 mi W. of Holcomb	Raymond Heath	1951	960	Drl	155	155	6	--	do.	40	1	--	(b).
Ot 1037	10J, 10.2N, 1.0W	5¼ mi W. of Holcomb	Grace Conn	1953	970	Drl	209	206	6	--	Pleistocene sand	65	5	--	(b). Driller filled lower 17 ft of well with crushed stone.
Ot 1038	10J, 6.3N, 0.7W	3½ mi N. of Honeoye	Eugene Fisher	1952	1,010	Drl	105	--	6	20	Genesee formation, Tully limestone, and Moscow shale	15	½	--	Well was deepened from 45 ft to 105 ft in 1952.
Ot 1039	9K, 5.8S, 0.7E	3½ mi NE. of Canandaigua	Andrew Burt, Sr.	1952	700	Drl	39	--	6	--	Pleistocene sand	9	20	--	(b).
Ot 1040	9K, 5.6S, 1.1E	do.	Charles Graham	1951	700	Drl	48	--	6	23	Skaneateles and Marcellus shales	18	10	--	
Ot 1041	9J, 6.6S, 10.4E	1 mi NW. of Canandaigua	Leora Gehrig	1955	790	Drl	50	--	6	40	Ludlowville and Skaneateles shales	2	10	--	Water contains hydrogen sulfide.
Ot 1042	9J, 6.7S, 10.5E	1 mi NW. of Canandaigua	A. W. White	--	800	Drl	30	25	6	20	do.	2	16	Cs	Supplies garage.
Ot 1043	9L, 0.4N, 0.4E	9½ mi N. of Geneva	Eugene Groescup	1953	510	Drl	125	95	6	65	Camillus shale	96	10	A	Well was considered finished at depth of 100 ft in March 1952. Became dry during summer of 1953, and was deepened to 125 ft. An abandoned well 3 ft to the east and 175 ft deep yielded water containing hydrogen sulfide.

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 1044	9J, 7.1S, 12.5E	1½ mi NE. of Canandaigua	D. H. Lincoln	1952	710	Drl	64	--	6	--	Pleistocene sand and gravel	8	15	--	
Ot 1045	9K, 9.1S, 0.8E	2½ mi SE. of Canandaigua	Joseph Lill	1954	810	Drl	77	18	6	17	Ludlowville shale	--	2	--	Water contains hydrogen sulfide.
Ot 1046	9K, 9.2S, 1.0E	do.	William Banduric	1951	820	Drl	120	8	6	8	Ludlowville and Skaneateles shales	--	--	--	Well yields flammable gas.
Ot 1047	9K, 9.2S, 1.0E	do.	do.	1951	820	Drl	40	8	6	8	Ludlowville shale	4	3	--	Water contains hydrogen sulfide.
Ot 1048	9K, 9.6S, 2.7E	5 mi SE. of Canandaigua	Felix Phillips	1954	910	Drl	65	--	6	8	Moscow and Ludlowville shales	7	10	--	
Ot 1049	9K, 9.0S, 5.8E	7½ mi E. of Canandaigua	Ralph Smith	1950	860	Drl	78	35	6	35	do.	15	3	H	
Ot 1050	9K, 11.2S, 4.2E	3½ mi NW. of Gorham	James DePew	--	990	Drl	139	--	6	13	do.	39	10	A	(b).
Ot 1051	9K, 11.9S, 3.4E	do.	E. H. Gulvin, Jr.	1954	1,030	Drl	35	--	6	32	Moscow shale	17	30	--	Drilled inside well 18 ft deep. Water contains hydrogen sulfide.
Ot 1052	9K, 13.7S, 6.2E	Gorham	Lohmann Foods Corp.	1949	900	Drl	125	34	8 to 6	33	Tully limestone and Moscow shale	30	7	--	(b).
Ot 1053	9K, 13.8S, 5.9E	do.	Henry Teece	--	890	Drl	62	27	6	26	Moscow shale	12	2	H	(b). Drilled inside dug well 10 ft deep.
Ot 1054	9K, 14.0S, 5.9E	do.	Elmer Perry	1949	900	Drl	47	47	6	--	Pleistocene sand and gravel	16	2	H	(b).
Ot 1055	9K, 14.9S, 6.4E	1 mi S. of Gorham	Francis Adams	--	1,000	Drl	88	--	6	60	Genesee formation	35	6	A	(b). Drilled inside dug well 40 ft deep. Water contains hydrogen sulfide.
Ot 1056	9K, 15.5S, 6.0E	1½ mi S. of Gorham	H. C. Thomas	--	1,010	Drl	138	--	6	65	do.	46	3	A	(b).
Ot 1057	9K, 13.1S, 7.1E	1½ mi NE. of Gorham	L. S. Pedersen	1949	960	Drl	40	26	6	25	do.	3	2	A	(b).
Ot 1058	9K, 11.0S, 6.8E	3 mi N. of Gorham	Kenneth Carson	--	870	Drl	157	69	6	69	Ludlowville shale	--	10	H	Water contains hydrogen sulfide.
Ot 1059	9K, 9.8S, 7.7E	6 mi W. of Geneva	Martha Bleich	1953	860	Drl	100	23	6	18	do.	10	1	Cs	(b). Supplies restaurant.
Ot 1060	9K, 9.9S, 11.4E	2½ mi SW. of Geneva	Robert Vogt	1954	730	Drl	159	140	6	140	Ludlowville and Skaneateles shales	50	2	--	
Ot 1061	9K, 9.9S, 12.1E	2 mi SW. of Geneva	Wilber Gee	1954	720	Drl	60	60	6	--	Pleistocene sand	20	5	--	
Ot 1062	9K, 9.8S, 12.0E	do.	Star Broadcasting Co. (WGVA)	1954	700	Drl	60	60	6	--	do.	18	20	--	
Ot 1063	9K, 10.8S, 11.4E	3 mi SW. of Geneva	Seneca Guernsey Farms	1949	760	Drl	47	47	8	--	Pleistocene sand and gravel	15	14	Adl	(a). Finished with 5 ft length of 8-inch screen. Two other drilled wells on property.
Ot 1065	9L, 16.4S, 0.2E	7½ mi S. of Geneva	A. P. Brown	1955	660	Drl	52	44	6	44	Ludlowville shale	18	2	H	
Ot 1066	9L, 16.4S, 0.5E	do.	A. Callahan	1955	640	Drl	52	40	--	39	do.	--	2	--	
Ot 1067	9L, 16.5S, 1.2E	do.	George Senne	1955	480	Drl	96	50	6	48	do.	--	7	H	(b).
Ot 1068	9L, 13.8S, 1.2E	4 3/4 mi S. of Geneva	John E. Vance	1950	560	Drl	105	105	6	--	Pleistocene sand and gravel	16	20	UH	(b). Abandoned because sand entered well from bottom.
Ot 1069	9K, 11.9S, 6.4E	2 mi N. of Gorham	Milford Herod	--	860	Drl	110	110	6	--	do.	32	4	H	(b).
Ot 1070	9J, 10.3S, 10.9E	2½ mi S. of Canandaigua	Henry Miller	1951	800	Drl	140	140	6	--	Pleistocene deposits	50	3	--	
Ot 1071	9J, 9.8S, 10.5E	2 mi S. of Canandaigua	Harry Moore	1954	930	Drl	103	103	6	--	do.	10	½	H	Well considered finished at depth of 67 ft in 1953. Deepened to 103 ft in 1954.

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 1072	9J, 8.9S, 10.7E	1 mi SW. of Canandaigua	Irwin Hicks	1951	810	Drl	94	94	6	--	Pleistocene sand and gravel	--	15	--	
Ot 1073	9J, 8.7S, 10.6E	do.	Mr. Merson	1950	820	Drl	60	60	6	--	do.	28	16	--	(b).
Ot 1074	9J, 8.7S, 10.6E	do.	Lee Smith	1950	820	Drl	37	37	6	--	do.	10	12	--	(b).
Ot 1075	9J, 8.8S, 10.5E	do.	Harold North	1952	840	Drl	50	--	6	--	Pleistocene sand	15	10	--	(b).
Ot 1076	9J, 9.0S, 10.3E	1½ mi SW. of Canandaigua	Warren Hopkins	--	930	Drl	247	179	6	179	Ludlowville shale	70	5	--	Water has relatively high iron content and contains hydrogen sulfide. Sand and gravel layer between 117 ft and 129 ft had static water level of 33 ft and yield of 10 gpm.
Ot 1077	9J, 11.1S, 11.2E	3½ mi S. of Canandaigua	L. M. Higgins	1951	720	Drl	81	79	6	--	Pleistocene sand and gravel	--	15	--	Water has relatively high iron content.
Ot 1078	9J, 12.6S, 10.8E	5 mi S. of Canandaigua	Adrian Taylor	1951	720	Drl	64	10	6	10	Ludlowville shale	10	15	H	(b). Well finished at depth of 29 ft in 1947. Deepened to 64 ft in 1951. Layer of clay 9 ft thick overlies bedrock. Temp 50°F, 5/21/48.
Ot 1079	9J, 12.8S, 10.6E	do.	Robert Foster	1951	860	Drl	100	39	6	39	Moscow shale	4	4	--	
Ot 1080	9J, 16.8S, 8.6E	4½ mi SE. of Bristol Center	Harold Blake	--	1,050	Drl	108	--	6	4	Sonyea formation	20	½	H	(b).
Ot 1081	9J, 16.8S, 8.7E	do.	E. C. VanKeuran	--	990	Drl	60	--	6	6	Sonyea and Genesee formations	15	1	H	
Ot 1082	10J, 0.2S, 6.8E	9½ mi NE. of Naples	J. H. Brahm, Jr.	1953	1,260	Drl	124	--	4 3/4	--	West Falls formation (Hatch shale member)	50	2	A	Originally drilled to depth of 47 ft.
Ot 1083	10J, 1.7S, 6.9E	8 mi NE. of Naples	H. J. Rennoldson	--	1,300	Drl	78	--	6	3	do.	50	7	H	
Ot 1084	10J, 3.6S, 6.8E	6 mi NE. of Naples	Curtis Phillips	1951	1,000	Drl	140	--	6	30	Sonyea formation	40	1	H	Drilled inside dug well 30 ft deep.
Ot 1085	10J, 5.5S, 7.0E	4½ mi NE. of Naples	Harold Manning	--	700	Drl	65	--	6	48	Genesee formation	0	5	H	
Ot 1086	10J, 3.0S, 4.8E	6½ mi N. of Naples	Lynn Watkins	1949	1,980	Drl	95	63	6	28	West Falls formation	38	15	H	
Ot 1087	10J, 3.0S, 6.2E	do.	Charles Standish	1949	1,200	Drl	120	--	6	7	West Falls formation (Hatch shale member)	20	½	H	
Ot 1088	10J, 4.6S, 6.4E	5 mi NE. of Naples	Edwin C. Rex	1951	1,300	Drl	69	9	5	8	do.	--	3	H	
Ot 1089	10J, 6.1S, 5.9E	3½ mi N. of Naples	Wm. Schenk	1950	1,480	Drl	63	63	6	--	Pleistocene sand and gravel	48	5	H	
Ot 1090	10J, 6.7S, 6.1E	3 mi NE. of Naples	Philipp Baader	1949	1,290	Drl	108	--	6	9	West Falls formation (Grimes siltstone and Hatch shale members)	18	1/3	H	
Ot 1091	10J, 8.7S, 6.3E	1½ mi NE. of Naples	Emmett Williams	1954	750	Drl	122	--	6	22	Sonyea and Genesee formations	2	1	H	(b). Water has an unpleasant taste.
Ot 1092	10J, 7.4S, 5.9E	2 mi NE. of Naples	Widmer's Wine Cellars, Inc.	1950	1,100	Drl	71	--	6	14	West Falls formation (Hatch shale member)	11	10	H	
Ot 1093	10J, 7.9S, 5.7E	1 3/4 mi NE. of Naples	do.	1953	980	Drl	150	150	7 to 5 5/8	8	do.	16	1	H	All water entering well below depth of 60 ft contained hydrogen suflide.
Ot 1094	10J, 10.2S, 4.4E	3/4 mi S. of Naples	Ralph Lyon	--	850	Drl	47	47	6	--	Pleistocene sand	15	4	UH	(b). Well abandoned because fine sand plugged bottom of well.
Ot 1095	10J, 10.2S, 4.2E	1 mi SW. of Naples	Julian Fox	1950	870	Drl	16	16	6	--	Pleistocene sand and gravel	8	5	H	

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 1096	10J, 11.2S, 1.7E	3 3/4 mi SW. of Naples	M. Peck	1950	1,410	Drl	156	--	6	95	West Falls formation	--	2	A	
Ot 1097	10J, 7.0S, 1.1E	4½ mi NW. of Naples	James Grove	1951	1,000	Drl	37	37	6	--	Pleistocene sand and gravel	13	5	H	(b).
Ot 1098	10J, 0.1S, 2.5W	3½ mi SW. of Honeoye	Joseph Deats	1951	1,510	Drl	67	--	--	12	West Falls formation	10	3	H	
Ot 1099	10J, 4.0S, 2.7W	7 mi S. of Honeoye	Carl Bausch	1953	1,460	Drl	105	--	5 5/8	--	do.	80	1	H	
Ot 1100	9J, 14.1S, 1.0E	2 mi NE. of Honeoye	M. T. Ganzauge	1951	1,120	Drl	63	63	6	--	Pleistocene sand and gravel	14	8	--	Drilled inside dug well 16 ft deep. Water has relatively high iron content.
Ot 1101	9J, 13.8S, 1.1E	2¼ mi NE. of Honeoye	Henry Junge	1951	1,260	Drl	70	47	6	47	Sonyea formation	35	18	--	
Ot 1102	9J, 13.8S, 0.9E	2 mi NE. of Honeoye	Louis A. Valenza	1951	1,240	Drl	43	--	6	18	do.	24	4	--	
Ot 1103	9J, 10.8S, 3.9E	4 mi S. of Holcomb	Julian Harter	1951	1,160	Drl	80	--	6	15	Genesee formation	35	¼	H	
Ot 1104	9J, 10.5S, 3.9E	do.	George Tiffany	1953	1,160	Drl	65	--	6	20	do.	10	1½	H	
Ot 1105	9J, 13.2S, 5.6E	Bristol Center	Anna Fletcher	--	930	Drl	40	--	6	35	do.	--	1½	H	Water contains hydrogen sulfide.
Ot 1106	9J, 15.5S, 5.3E	2 mi S. of Bristol Center	Edward Harris	1953	1,200	Drl	96	--	6	40	Sonyea formation	20	10	H	
Ot 1107	10J, 2.2S, 4.0E	7½ mi N. of Naples	Joseph Panzarella	1949	1,220	Drl	23	23	6	--	Pleistocene sand and gravel	10	--	H	(b).
Ot 1108	10J, 0.5S, 2.9E	8 3/4 mi N. of Naples	George Schultz	--	1,320	Drl	53	53	6	--	do.	10	5	H	
Ot 1109	10J, 1.0S, 3.2E	8¼ mi N. of Naples	Harold Converse	1951	1,400	Drl	48	48	6	--	do.	22	7	H	(b).
Ot 1110	10J, 1.2S, 3.1E	do.	Alfred Wadecki	--	1,340	Drl	60	60	6	--	Pleistocene sand	25	3	H	(b).
Ot 1111	10J, 1.7S, 3.5E	7 3/4 mi N. of Naples	Carl Anderson	1950	1,400	Drl	50	50	6	--	do.	35	7	H	(b).
Ot 1112	10J, 1.8S, 3.5E	do.	Albert Worden	--	1,410	Drl	60	60	6	--	do.	35	7	A	(b).
Ot 1113	10J, 2.3S, 3.9E	7 mi N. of Naples	Donald Weatherup	--	1,280	Drl	125	--	5	108	West Falls formation (Hatch shale member)	50	1½	H	(b). Water contains hydrogen sulfide and well yields some flammable gas.
Ot 1114	10J, 2.5S, 3.9E	do.	Oleson	1950	1,240	Drl	52	52	6	--	Pleistocene sand and gravel	flows	3	H	(b).
Ot 1115	10J, 2.1S, 3.7E	7¼ mi N. of Naples	Unknown	1949	1,340	Drl	25	25	5 5/8	--	do.	10	10	H	(b).
Ot 1116	10J, 12.8N, 0.0W	4 3/4 mi NW. of Holcomb	Ray Davis	1954	910	Drl	105	105	6	--	do.	35	5	H	
Ot 1117	10J, 13.4N, 4.0W	9 mi NW. of Holcomb	M. Bushman	1954	690	Drl	102	10	6	10	Onondaga limestone and Cobleskill dolomite	50	5	H	
Ot 1119	9J, 6.5S, 10.7E	1½ mi N. of Canandaigua	Eugene Fisher	1952	800	Drl	27	27	6	--	Pleistocene sand	4	6	--	
Ot 1120	9J, 6.5S, 10.8E	do.	do.	1952	800	Drl	25	25	6	--	do.	4	6	--	
Ot 1121	9K, 5.3S, 9.3E	2½ mi S. of Phelps	Harold Updyke	1955	720	Drl	185	93	6	90	Skaneateles and Marcellus shales	--	--	U	Yield inadequate. Yielded some flammable gas when new.
Ot 1122	9J, 0.5S, 7.0E	2½ mi NE. of Victor (Interchange No. 44)	N. Y. State Thruway Authority	1954	570	Drl	165	29	6	19	Camillus shale	25	1 or 2	U	(a). Was drilled as source of water for Thruway toll booth. Well unused because it produced "black sulfur water" (see remarks for well Ot 219).
Ot 1123	9K, 1.9S, 3.9E	2 mi NW. of Clifton Springs	N. Y. State Thruway Authority	1956	530	Drl	55	25	8	25	do.	--	100	Cs	(a). Was auxiliary supply for restaurant on Thruway at Clifton Springs. Well Ot 1130 nearby.

Table 10.--Records of selected wells and test holes in Ontario County

Part 1.--Records of wells (Continued)

Well number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Year completed	Altitude above sea level (feet)	Type of well	Depth of well (feet)	Depth of casing (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing unit	Water level below land surface (feet)	Yield (gallons per minute)	Use	Remarks
Ot 1124	9L, 3.3S, 1.1E	5 3/4 mi N. of Geneva (Interchange No. 42)	N. Y. State Thruway Authority	1954	450	Drl	51	51	6	78	Pleistocene sand and gravel	24 5/54	9	Cs	(a). Supplies Thruway toll booth. Originally drilled to depth of 100 ft. Static water level of Salina group between depths of 78 ft and 100 ft was 45 ft below land surface. Yield was 15 gpm and quality was unsatisfactory. Lower 50 ft of well was sealed off and the well redeveloped in sand and gravel at depth of 50 ft. Static water level in sand and gravel was 24 ft. Drawdown of 16 ft became constant after pumping at rate of 9.5 gpm for 8 hrs.
Ot 1125	9J, 0.9N, 3.1E	2 3/4 mi NW. of Victor (Interchange No. 45)	do.	1954	650	Drl	97	--	6	--	do.	72	12	Cs	(a). Supplies Thruway toll booth. Has been pumped at 12 gpm for 8 hrs.
Ot 1126	9J, 0.5N, 3.4E	2¼ mi NW. of Victor (restaurant site 23, hole No. 1)	do.	1953	650	Drl	200	105	6	105	Salina group	76	13	U	(b). Drilled to obtain water supply for restaurant on Thruway near Victor. Yield inadequate. Drawdown 106 ft after pumping 12 gpm for 8 hrs. Water reported to enter well through lenses of gypsum. Temp 50°F, 8/17/53.
Ot 1127	9J, 0.1S, 4.3E	1¼ mi N. of Victor (restaurant site 23, hole No. 2)	do.	1953	700	Drl	200	119	6	119	Camillus shale	110	9	U	(a) (b). Drilled to obtain water supply for restaurant on Thruway near Victor. Static water level of layer of sand and gravel between depths 35 ft and 40 ft was 13 ft below land surface and yield was 18 gpm. Static water level of sand and gravel layer between depths 48 ft and 56 ft was 16 ft below land surface and yield was 25 gpm. Static water level of Salina group between depths 119 ft and 140 ft was 110 ft below land surface and yield was 9 gpm.
Ot 1128	9K, 1.9S, 3.5E	2½ mi NW. of Clifton Springs (restaurant site 22, hole No. 1)	do.	1953	540	Drl	50	--	6	28	do.	--	--	U	(b). Drilled to obtain water supply for restaurant on Thruway near Clifton Springs. Yield inadequate. Located 60 ft east of well Ot 1129.
Ot 1129	9K, 1.9S, 3.5E	2½ mi NW. of Clifton Springs (restaurant site 22 hole No. 2)	do.	1953	540	Drl	100	--	6	27	Pleistocene sand and gravel	0	--	U	(a) (b). Drilled to obtain water supply for restaurant on Thruway near Clifton Springs. Originally drilled to depth of 100 ft. Static water level of Salina group between depths of 27 ft and 100 ft was 40 ft below land surface. Yield of 20 gpm was not adequate and quality was unsatisfactory. Lower 73 ft of well was sealed off and the well redeveloped in unconsolidated material between depths of 23 ft and 27 ft. Static water level of unconsolidated material was at land surface and yield was 36 gpm. Hardness of water from bedrock was 3,600 ppm; from unconsolidated material 1,680 ppm.
Ot 1130	9K, 1.9S, 3.9E	2 mi NW. of Clifton Springs (restaurant site 22, hole No. 3)	do.	1953	530	Drl	51	--	6	25	Camillus shale	13	--	UC	(a) (b). Supplied water for restaurant on Thruway near Clifton Springs. Static water level of Salina group between depths of 25 ft and 51 ft was 13 ft below land surface and yield was 128 gpm. Located 1,900 ft east of Ot 1128 and Ot 1129 and 100 ft from Ot 1123. Restaurant now supplied by Newark public water supply. Temp 51°F, 8/26/53.

Table 10.--Records of selected wells and test holes in Ontario County

Part 2.--Records of test holes

(The test holes for which data are tabulated below were drilled by the New York State Department of Public Works to obtain data for the design of foundations for highway bridges. Although several test holes were constructed at each bridge site, the data for only one, usually the deepest, are included in the table. Cores or spoon samples were obtained at selected depths. Table 9, part 2, contains a log for each test hole listed below.)

Test hole number	Location: Coordinates	Location: Bridge Site	Year completed	Altitude above sea level (feet)	Depth of well (feet)	Diameter of outside of casing (inches)	Depth to bedrock (feet)	Water level: Below land surface (feet)	Water level: Date of measurement	Water level: Depth of hole at time of measurement (feet)
TEST HOLES CONSTRUCTED ALONG THE NEW YORK STATE THRUWAY										
Ot 1134	9J, 1.1N, 1.4E	Fishers Road, ½ mi NW. of Fishers	1946	520	51	4 3/8	not reached	--	--	--
Ot 1138	9J, 1.1N, 1.5E	New York Central R.R., ½ mi NW. of Fishers	1946	505	97	4 3/8	do.	--	--	--
Ot 1139	9J, 1.1N, 1.7E	Irondoquoit Creek, ½ mi NE. of Fishers	1946	480	70	4 3/8	do.	14	9/46	50
Ot 1143	9J, 1.1N, 1.8E	Log Cabin Road, ½ mi NE. of Fishers	1946	523	40	4 3/8-2 3/4	do.	--	--	--
Ot 1148	9J, 0.6N, 3.1E	Interchange No. 45, 1½ mi E. of Fishers	1952	650	53	2 3/4	do.	--	--	--
Ot 1157	9J, 0.5N, 3.3E	Willow Road, 1½ mi E. of Fishers	1944	660	28	--	do.	--	--	--
Ot 1163	9J, 0.2S, 6.1E	Brownville Road, 1 3/4 mi NE. of Victor	1946	565	37	4 3/8	do.	5	3/46	13
Ot 1164	9J, 0.3S, 6.4E	Ganargua Creek, 2 mi NE. of Victor	1946	535	45	4 3/8	17	1.5	3/46	20
Ot 1169	9J, 0.3S, 6.7E	Crowley Road, 2¼ mi NE. of Victor	1946	598	43	4 3/8	25	--	--	--
Ot 1177	9J, 0.9S, 7.0E	Lehigh Valley R.R., 2½ mi NE. of Victor	1946	586	33	4 3/8	10	--	--	--
Ot 1181	9J, 0.4S, 7.9E	Pumpkin Hook Road, 3½ mi NE. of Victor	1951	579	23	4 3/8	3	4	12/46	10
Ot 1189	9J, 0.5S, 8.8E	Farmington Road, 4¼ mi E. of Victor	1951	590	24	4 3/8	11	--	--	--
Ot 1191	9J, 1.3S, 11.5E	Blacksmith Corners Road, 6½ mi N. of Canandaigua	1951	578	26	4 3/8	16	--	--	--
Ot 1196	9K, 1.4S, 0.8E	Interchange No. 43, 1 mi NW. of Manchester	1952	554	24	4 3/8	8	3.5	2/52	5
Ot 1197	9K, 1.5S, 1.3E	N. Y. State Highway 21, 3/4 mi N. of Manchester	1952	556	33	4 3/8-2 3/4	11	--	--	--
Ot 1199	9K, 1.6S, 1.8E	Canandaigua Outlet, 1 mi NE. of Manchester	1952	543	22	4 3/8	10	--	--	--
Ot 1209	9K, 1.7S, 3.5E	Canandaigua Outlet, 2½ mi E. of Manchester	1952	535	27	4 3/8	10	3.5	3/52	5
Ot 1213	9K, 1.7S, 3.6E	Port Gibson Road, 2½ mi E. of Manchester	1952	541	21	4 3/8	16	--	--	--
Ot 1228	9K, 1.9S, 4.7E	Fall Brook, 1½ mi NW. of Clifton Springs	1952	525	30	4 3/8	13	3	4/52	--
Ot 1235	9K, 1.8S, 5.5E	Kendall Road, 1 mi NW. of Clifton Springs	1951	527	36	4 3/8-2 3/4	20	--	--	--
Ot 1245	9K, 2.0S, 8.6E	Pennsylvania R.R., 1½ mi NW. of Phelps	1952	550	17	4 3/8	7	--	--	--

Table 10.--Records of selected wells and test holes in Ontario County

Part 2.--Records of test holes (Continued)

Test hole number	Location: Coordinates	Location: Bridge Site	Year completed	Altitude above sea level (feet)	Depth of well (feet)	Diameter of outside of casing (inches)	Depth to bedrock (feet)	Water level: Below land surface (feet)	Water level: Date of measurement	Water level: Depth of hole at time of measurement
Ot 1249	9K, 2.2S, 9.0E	N. Y. State Highway 88, 1¼ mi NW. of Phelps	1951	552	25	4 3/8-2 3/4	7	--	--	--
Ot 1251	9K, 2.3S, 9.7E	Canandaigua Outlet, 3/4 mi N. of Phelps	1952	463	28	2 3/4	19	1	6/52	--
Ot 1260	9K, 2.3S, 9.9E	Marbletown Road, 3/4 mi N. of Phelps	1952	490	52	4 3/8-2 3/4	48	--	--	--
Ot 1263	9K, 2.7S, 10.7E	Gifford Road, 1 mi E. of Phelps	1952	494	48	4 3/8-2 3/4	33	--	--	--
Ot 1264	9K, 3.0S, 12.2E	Pre-Emption Road, 2½ mi E. of Phelps	1952	496	80	4 3/8-2 3/4	61	--	--	--
Ot 1272	9L, 3.2S, 0.5E	Canandaigua Outlet, 6 mi N. of Geneva	1952	426	55	2 3/4	47	--	--	--
Ot 1273	9L, 3.2S, 0.9E	Interchange No. 42, 6 mi N. of Geneva	1952	426	56	2 3/4	51	5	6/52	15
Ot 1278	9L, 3.2S, 1.2E	N. Y. State Highway 14, 6 mi N. of Geneva	1952	479	52	2 3/4	not reached	--	--	--
Ot 1286	9L, 3.2S, 1.3E	N. Y. Central R.R., Fall Brook Branch, 6 mi N. of Geneva	1952	480	52	4 3/8-2 3/4	do.	--	--	--
TEST HOLES CONSTRUCTED ALONG U. S. HIGHWAY 20 (NY 5)										
Ot 1288	9L, 9.1S, 1.2E	Castle Creek culvert, Geneva lake front, Geneva	1950	443	91	4 3/8-2 3/4	do.	--	--	--
Ot 1289	9L, 9.4S, 1.0E	Boat basin, Geneva lake front, Geneva	1950	436	102	4 3/8-2 3/4	do.	--	--	--
Ot 1290	9K, 8.6S, 0.1W	Canandaigua Outlet, Canandaigua City bypass, 2 mi SE. of Canandaigua	1953	685	42	2 3/4	do.	--	--	--
Ot 1296	9K, 9.0S, 0.5E	Fall Creek, Canandaigua City bypass, 2½ mi SE. of Canandaigua	1953	729	19	2 3/4	1	--	--	--

Table 11.--Records of selected springs in Ontario County

Spring number: See section in text entitled "Well-Location System".

Location: For explanation of location coordinates see section entitled "Well-Location System".

Altitude: Estimated from topographic maps.

Water-bearing unit: Descriptions of aquifers are included in table 2.

Use: A, agricultural; H, residential; I, industrial; M, municipal or community; U, use discontinued; d, domestic; i, irrigation; l, livestock.

Remarks: Most data reported, except temperature measurements; gpd, gallons per day; gpm, gallons per minute; (a), chemical analysis in table 5.

Spring number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Altitude above sea level (feet)	Water-bearing unit	Use	Remarks
Ot 1Sp	9L, 6.4S, 0.2E	2 3/4 mi NW. of Geneva	F. Guest	500	Pleistocene deposits	Adl	Yields 4 gpm. Temp 50°F, 7/23/47.
Ot 2Sp	9L, 3.3S, 0.2W	3 mi E. of Phelps	F. A. Salisbury	540	Pleistocene sand and gravel	--	Yields 2 gpm.
Ot 3Sp	9L, 4.7S, 1.0W	2½ mi SE. of Phelps	Nathan Oaks, Jr.	540	Onondaga limestone	A	Supplies 2 houses and 80 livestock.
Ot 4Sp	9K, 2.5S, 10.8E	1 mi NE. of Phelps	G. E. Mott	480	Pleistocene sand and gravel	Adl	Supplies 50 livestock.
Ot 5Sp	9K, 0.5N, 5.2E	3½ mi N. of Clifton Springs	H. Lannon	550	do.	Adl	Yields 1 gpm. Supplies 30 livestock.
Ot 6Sp	9K, 2.5N, 0.5E	4½ mi N. of Manchester	Church of Jesus Christ of Latter Day Saints	500	Pleistocene till	Adl	Supplies 9 people and 35 livestock.
Ot 7Sp	9K, 0.8S, 1.2E	1¼ mi N. of Manchester	William Eddinger	630	do.	Adl	Temp 51°F, 11/10/47.
Ot 8Sp	9K, 1.6S, 2.3E	1½ mi NE. of Manchester	W. S. Smith	560	do.	Adl	Supplies 6 people and 4 livestock. Temp 51°F, 11/10/47.
Ot 9Sp	9K, 4.3S, 6.4E	2 mi S. of Clifton Springs	Clifton Springs Sanitarium	680	do.	UA	Once supplied several families and 400 livestock.
Ot 10Sp	9K, 6.7S, 5.6E	4 mi S. of Clifton Springs	Village of Clifton Springs	830	Pleistocene deposits	M	(a). Village consumption of 200,000 gpd is supplied by this spring. Temp 50°F, 9/30/55.
Ot 11Sp	9K, 5.5S, 6.5E	3 mi S. of Clifton Springs	George Durkee	760	Pleistocene till	Adl	Once supplied water for engines operating on Pennsylvania R.R.
Ot 12Sp	9K, 14.1S, 9.6E	3½ mi E. of Gorham	C. C. Lang & Son, Inc.	890	Pleistocene deposits	I	Supplies canning factory. Yield of 25 gpm inadequate at times of peak production. Supplemental water is transported by railroad tank car from Penn Yan.
Ot 13Sp	9K, 10.3S, 12.4E	2 mi SW. of Geneva	A. G. Lewis	680	Pleistocene till	Adi	Supplies 10 people.
Ot 14Sp	9J, 9.9S, 8.2E	3½ mi SW. of Canandaigua	H. W. Nash	1,080	do.	Adl	Supplies 7 people and 10 livestock.
Ot 15Sp	9J, 5.0S, 8.6E	4 mi NW. of Canandaigua	Clifford Purdy	800	Pleistocene deposits	Al	Temp 51°F, 5/28/48.
Ot 16Sp	9J, 8.6S, 4.0E	1 3/4 mi S. of Holcomb	C. B. Gauss	1,060	Pleistocene till	Adl	Supplies 8 people and 50 sheep. Water flows from contact between till and bedrock. Contains hydrogen sulfide. Temp 50°F, 6/25/48.
Ot 17Sp	9J, 0.1N, 10.7E	5 mi NW. of Shortsville	P. J. DeWandel	580	--	Adl	Supplies 6 people and 30 livestock. Well Ot 522 on property. Temp 51°F, 7/23/48.
Ot 18Sp	10K, 2.7S, 4.4W	6½ mi SW. of Honeoye	William Luther	1,820	Pleistocene till	H	Water flows from contact between till and bedrock.

Table 11.-Records of selected springs in Ontario County (Continued)

Spring number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Altitude above sea level (feet)	Water-bearing unit	Use	Remarks
Ot 19Sp	10J, 3.2S, 4.4W	7 mi SW. of Honeoye	C. Miller	1,800	Pleistocene till	Adl	Water flows from contact between till and bedrock.
Ot 20Sp	9J, 6.0S, 2.0W	6½ mi W. of Holcomb	E. W. Shellman	900	Pleistocene deposits	H	
Ot 21Sp	10J, 6.4S, 3.3E	3½ mi NW. of Naples	Frank Yaw	1,600	Pleistocene sand and gravel	H	
Ot 22Sp	10J, 1.7S, 6.8E	8 mi NE. of Naples	A. Lee	1,380	West Falls formation (Hatch shale member)	H	
Ot 23Sp	10J, 2.1S, 6.8E	7½ mi NE. of Naples	do.	1,300	do.	U	
Ot 24Sp	10J, 8.3S, 4.5E	1¼ mi NW. of Naples	G. M. Cornish	1,420	Pleistocene silt and sand	H	
Ot 25Sp	10J, 2.9S, 4.8E	6½ mi N. of Naples	L. C. Watkins	2,000	Pleistocene till	Adl	Supplies 42 sheep. Water flows from contact between till and bedrock.
Ot 26Sp	10J, 0.4N, 1.3W	2½ mi S. of Honeoye	J. Lambo	1,000	Sonyea formation	H	Temp 56°F, 10/18/48.
Ot 27Sp	10J, 10.6S, 3.7E	2 mi SW. of Naples	O. Warren	1,020	Pleistocene deposits	Adl	Temp 54°F, 11/12/48.
Ot 28Sp	10J, 9.0S, 2.7E	2½ mi W. of Naples	Walter Wood	1,160	Pleistocene sand and gravel	Adl	Temp 49°F, 11/13/48.
Ot 29Sp	10J, 11.2S, 4.1E	2 mi SW. of Naples	Philip Schuyler	1,100	do.	Adl	(a). Temp 46°F, 3/21/54.
Ot 31Sp	9J, 2.3N, 1.1E	1 3/4 mi NW. of Fishers	K. G. Smith	450	do.	H	Yields 1 gpm.
Ot 32Sp	9J, 2.3N, 3.3E	2½ mi NE. of Fishers	F. C. Small	800	do.	H	Supplies two families. Yield not adequate.
Ot 33Sp	9J, 1.1S, 5.9E	1¼ mi E. of Victor	Irma Conover	570	do.	H	Supplies two families. Water is slightly turbid.
Ot 34Sp	9J, 0.8S, 5.9E	do.	Benjamin Carpenter	580	do.	Adl	
Ot 35Sp	9J, 1.9N, 5.9E	3 mi N. of Victor	Richard Lankes	580	do.	Adl	(a). Temp 49.5°F, 9/28/55.
Ot 36Sp	9J, 2.1N, 4.5E	3¼ mi N. of Victor	Homer Rugg	670	do.	Adl	
Ot 37Sp	9J, 1.8N, 6.5E	3½ mi NE. of Victor	Clayton Klem	570	do.	Adl	
Ot 38Sp	9J, 12.5S, 10.9E	4½ mi S. of Canandaigua	C. A. Carpenter	720	Pleistocene till	H	(a). Roadside spring. Water flows from contact between till and bedrock. Contains hydrogen sulfide. White precipitate deposited around spring.
Ot 39Sp	9J, 0.9S, 2.2E	2½ mi W. of Victor	Village of Victor	630	Pleistocene sand and gravel	M	(a). Source of municipal supply for Village of Victor and for restaurant on N. Y. State Thruway north of Victor. Yield was 200 gpm 5/4/55. Temp 48°F, 5/4/55; 48°F, 5/3/56.
Ot 40Sp	9K, 5.1S, 9.3E	2 mi S. of Phelps	Village of Phelps	790	Pleistocene deposits	M	(a). Source of municipal supply for Village of Phelps.

Table 11.--Records of selected springs in Ontario County (Continued)

Spring number	Location: Coordinates	Location: Related to nearby city or village	Owner or occupant	Altitude above sea level (feet)	Water-bearing unit	Use	Remarks
Ot 41Sp	9J, 1.6N, 1.4E	1 mi NW. of Fishers	Thomas McMillan	500	Pleistocene sand and gravel	H	Yields 10 gpm.
Ot 42Sp	9J, 0.6N, 1.0E	3/4 mi W. of Fishers	Chauncey Young	525	Pleistocene silt and sand	U	Yields 75 to 100 gpm. Temp 49.5°F, 6/13/55. Undeveloped.
Ot 43Sp	9J, 1.2S, 6.1E	1½ mi E. of Victor	John McMahan	550	Pleistocene deposits	AI	Undeveloped.
Ot 44Sp	9J, 2.0N, 1.5E	1¼ mi N. of Fishers	C. H. Strong	625	Pleistocene sand	H	Supplies family of seven.
Ot 45Sp	9K, 14.2S, 6.8E	½ mi E. of Gorham	Harry Seashore	970	Pleistocene sand and gravel	AI	Supplies farm and milk-processing plant.
Ot 46Sp	9J, 7.1S, 3.9E	½ mi SW. of Holcomb	Village of Holcomb	970	Pleistocene deposits	M	(a). Source of municipal supply (50,000 gpd) for the Village of Holcomb. First developed in 1932. Occasionally inadequate during canning season.
Ot 47Sp	9J, 7.4S, 3.4E	East Bloomfield	Village of East Bloomfield	970	do.	M	(a). Source of municipal supply (30,000 gpd) for the Village of East Bloomfield. Yield was 60 gpm 5/11/55. Temp 48°F, 5/11/55.
Ot 48Sp	9L, 0.4S, 1.4E	9 mi N. of Geneva	Rupert Raymer	430	do.	U	Yields 22 gpm. Water flows from contact between unconsolidated deposits and bedrock. Undeveloped.
Ot 49Sp	9J, 0.7S, 1.1E	3½ mi W. of Victor	Arthur White	610	Pleistocene sand and gravel	A	Was developed during excavation of farm pond. Yielded 120 gpm before pond was filled.
Ot 50Sp	9J, 0.1S, 3.0E	2 mi NW. of Victor	Mrs. L. Locke	560	--	U	White precipitate deposited around spring. Yields 25-50 gpm. Pool 30 ft in diameter and 5 ft deep. Temp 50°F, 10/11/57. Undeveloped.

REPORTS DEALING WITH GROUND-WATER CONDITIONS IN NEW YORK PUBLISHED BY THE NEW YORK STATE WATER RESOURCES COMMISSION AND PREPARED IN COOPERATION WITH THE U. S. GEOLOGICAL SURVEY

BULLETINS:

*GW- 1. Withdrawal of Ground Water on Long Island, N. Y.; D. G. Thompson and R. M. Leggette 1936.
*GW- 2. Engineering Report on the Water Supplies of Long Island; Russell Suter, 1937.
*GW- 3. Record of Wells in Kings County, N. Y.; R. M. Leggette and others. 1937.
*GW- 4. Record of Wells in Suffolk County, N. Y.; R. M. Leggette and others. 1938.
*GW- 5. Record of Wells in Nassau County, N. Y.; R. M. Leggette and others. 1938.
*GW- 6. Record of Wells in Queens County, N. Y.; R. M. Leggette and others. 1938.
*GW- 7. Report on the Geology and Hydrology of Kings and Queens Counties, Long Island; Homer Sanford. 1938.
GW- 8. Record of Wells in Kings County, N. Y., Supplement 1; R. M. Leggette and M. L. Brashears, Jr. 1944.
GW- 9. Record of Wells in Suffolk County, N. Y., Supplement 1; C. M. Roberts and M. L. Brashears, Jr. 1945.
GW-10. Record of Wells in Nassau County, N. Y., Supplement 1; C. M. Roberts and M. L. Brashears, Jr. 1946.
*GW-11. Record of Wells in Queens County, N. Y., Supplement 1; C. M. Roberts and Marion C. Jaster. 1947.
*GW-12. The Water Table in the Western and Central Parts of Long Island, N. Y.; C. E. Jacob. 1945.
*GW-13. The Configuration of the Rock Floor in Western Long Island, N. Y.; Wallace De Laguna and M. L. Brashears, Jr. 1948.
GW-14. Correlation of Ground-Water Levels and Precipitation on Long Island, N. Y.; C. E. Jacob. 1945.
*GW-15. Progress Report on Ground-Water Resources of the Southwestern Part of Broome County, N. Y.; R. H. Brown and J. G. Ferris. 1946.
*GW-16. Progress Report on Ground-Water Conditions in the Cortland Quadrangle, N. Y.; E. S. Asselstine. 1946.
*GW-17. Geologic Correlation of Logs of Wells in Kings County, N. Y.; Wallace De Laguna. 1948.
GW-18. Mapping of Geologic Formations and Aquifers of Long Island, N. Y.; Russell Suter, Wallace De Laguna, and N. M. Perlmutter. 1949.
**GW-19. Geologic Atlas of Long Island. 1950. (Consists of large-scale reproductions of maps in GW-18, available through special purchase).
GW-20. The Ground-Water Resources of Albany County, N. Y., Theodore Arnow. 1949.
GW-21. The Ground-Water Resources of Rensselaer County, N. Y.; R. V. Cushman. 1950.
GW-22. The Ground-Water Resources of Schoharie County, N. Y.; Jean M. Berdan. 1950.
GW-23. The Ground-Water Resources of Montgomery County, N. Y.; R. M. Jeffords. 1950.
GW-24. The Ground-Water Resources of Fulton County, N. Y.; Theodore Arnow. 1950.
GW-25. The Ground-Water Resources of Columbia County, N. Y.; Theodore Arnow. 1951.
GW-26. The Ground-Water Resources of Seneca County, N. Y.; A. J. Mozola. 1951.
*GW-27. The Water Table in Long Island, N. Y., in January, 1951; N. J. Lusczynski and A. J. Johnson. 1952.
*GW-28. Withdrawal of Ground Water on Long Island, N. Y.; A. H. Johnson and others. 1952.
GW-29. The Ground-Water Resources of Wayne County, N. Y.; R. E. Griswold. 1951.
GW-30. The Ground-Water Resources of Schenectady County, N. Y.; E. S. Simpson. 1952.
GW-31. Records of Wells in Suffolk County, N. Y., Supplement 2; A. H. Johnson and others. 1952.
GW-32. Ground Water in Bronx, New York, and Richmond Counties with Summary Data on Kings and Queens Counties, New York City, N. Y.; N. M. Perlmutter and Theodore Arnow. 1953.
GW-33. The Ground-Water Resources of Washington County, N. Y.; R. V. Cushman. 1953.
GW-34. The Ground-Water Resources of Greene County, N. Y.; Jean M. Berdan. 1954.
GW-35. The Ground Water Resources of Westchester County, N. Y., Part 1, Records of Wells and Test Holes; E. S. Asselstine and I. G. Grossman. 1955.
GW-36. Saline Waters in New York State; N. J. Lusczynski, J. J. Geraghty, E. S. Asselstine, and I. G. Grossman. 1956.
GW-37. The Ground Water Resources of Putnam County, N. Y.; I. G. Grossman. 1957.
GW-38. Chloride Concentration and Temperature of Water from Wells in Suffolk County, Long Island, N. Y., 1928-53; J. F. Hoffman and S. J. Spiegel. 1958.
GW-39. Record of Wells in Nassau County, N. Y., Supplement 2; Staff, Long Island Office, Water Power and Control Commission. 1958.
GW-40. The Ground-Water Resources of Chemung County, N. Y.; W. S. Wetterhall. 1959.
GW-41. Ground-Water Levels and Related Hydrologic Data from Selected Observation Wells in Nassau County, Long Island, N. Y.; by John Isbister. 1959.
GW-42. Geology and Ground-Water Resources of Rockland County, N. Y.; by N. M. Perlmutter. 1959.
GW-43 Ground-Water Resources of Dutchess County, N. Y., by E. T. Simmons, I. G. Grossman, and R. C. Heath, 1961.
GW-44. Ground-Water Levels and Their Relationship to Ground-Water Problems in Suffolk County, Long Island, N. Y., by J. F. Hoffman and E. R. Lubke, 1961.
GW-45 Hydrology of the Shallow Ground-Water Reservoir of the Town of Southold, Suffolk County, N. Y., by J. F. Hoffman, 1961.
GW-46 The Ground-Water Resources of Sullivan County, N. Y., by Julian Soren, 1961.
GW-47. Ground-Water Resources of the Massena-Waddington Area, St. Lawrence County, N. Y., by F. W. Trainer and E. H. Salvas, 1962.
GW-48. Ground-Water Resources of Ontario County, N. Y., by F. K. Mack and R. E. Digman, 1962.

An asterisk (*) indicates that the report is out of print, but such reports are available for consultation in certain libraries.